Tenant Environmental Performance and Property Investment - the Use of Environmental Management Systems in Reducing Risk

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A thesis submitted in partial fulfilment of the requirements of the University of Glamorgan for the Degree of Doctor of Philosophy

VOLUME I

September 1995

University of Glamorgan

Abstract

Within the property research community consideration of environmental risk in relation to a tenant's polluting activities has received little attention. Whilst the profession has begun to address environmental issues through various research initiatives, the study of current land uses causing environmental problems and, in particular, the consequences for property investors, is at a very early stage.

Through the literature review, and the major empirical project undertaken in the course of this research, significant advancements have been made in this area. It has been possible to establish the following: that the property investment portfolios of financial institutions and property investment companies are unlikely to be completely devoid of properties occupied by tenants capable of causing environmental damage; where such damage occurs an increasing body of opinion suggests that landlords could be held criminally liable for fines and/or statutory clean up costs; even where the tenant has sole liability (perhaps because the liabilities arise from activities the tenant has undertaken at another site) there are income security repercussions for the property investor. Site specific case studies, where industrial properties were inspected by the researcher and discussed with environmental auditors, played an important part in obtaining the information to support these findings.

Consequently, improvements in the environmental performance[1] of tenants occupying their properties, possibly, through the implementation of an environmental management system (EMS), will provide investors with a less risky property investment vis à vis other similar property investment opportunities occupied by tenants displaying low levels of environmental awareness. The empirical work within this thesis also found that property investors are beginning to acknowledge the concept of EMSs by considering it in the stock selection process.

The research introduces a new consideration into the catalogue of property investment risks, namely, the environmental performance of the tenant and the role of environmental management systems therein. This strengthens the existing academic literature on property investment risk, and as such provides an original and significant contribution to this field of knowledge.

[1]The environmental performance of a tenant is represented by the level of awareness, policies and the management practices displayed by the tenant in order to reduce the risk of environmental damage being caused by that tenant. Increasingly, it is associated with the existence or otherwise of a formal environmental management system.

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Acknowledgements

The work presented in this thesis was carried out under the supervision of **Mr. Stuart A. Gronow**, M.A., BSc, A.R.I.C.S., F.S.V.A. as Director of Studies. The author wishes to express his sincere gratitude for the encouragement and advice received from Mr. Gronow throughout the course of this research project.

Mr Gwyn Prescott, M.A., A.R.I.C.S., and **Dr. A. R. Ghanbari Parsa**, M.Phil., Ph.D., Aubrey Orchard-Lisle Fellow and Director of Research at South Bank University, in their capacities as supervisors are also warmly thanked for their support during the research period.

Dr Ian Cullen, BA, M.Phil., Ph.D. is thanked for his enthusiastic and constructive comments on the author's transfer report from M.Phil. to Ph.D.

Dr Dave Hillier, BA, MA, Ph.D. MA. is thanked for his constructive advice in relation to the methodological approach relating to the empirical research undertaken during this thesis.

The author wishes to thank the staff at the Welsh Development Agency for their kind permission in allowing two of their industrial estates to be inspected as part of the empirical work.

Appreciation is also extended to all those who gave their time to be interviewed during the empirical work.

I am grateful to my **Mother** and **Father** who have continued to encourage my academic studies over many years.

The person to whom I am most grateful, however, is **Michelle**. Without her belief, I would never have had the confidence to contemplate, let alone complete, a Doctoral Thesis.

Abbreviations

ACBE ..... Advisory Committee on Business and the Environment
BATNEEC .....Best Available Techniques Not Entailing Excessive Cost
BOD .....Biological Oxygen Demand
BSI ..... British Standards Institution
EAP ..... Environmental Action Programme
EARA..... Environmental Auditors Registration Association
EMAS .....Eco-Management and Audit Scheme
EMS ..... Environmental Management System
EMSs.....Environmental Management Systems
ENDS .....Environmental Data Services
EPA .....Environmental Protection Act
EU ..... European Union
FHE .....Further and Higher Education
FRI .....Full Repairing and Insuring Lease
HMIP ..... Her Majesty's Inspectorate of Pollution
ICRCL... Interdepartmental Committee on the Redevelopment of Contaminated Land
IEA..... Institute of Environmental Assessment
IPD .....Investment Property Databank
ISO .....International Standards Organisation
LDDC..... London Docklands Development Corporation
LPA.....Local Planning Authority
MBI..... Market-Based Instruments
MPT ..... Modern Portfolio Theory
NACCB..... National Accreditation Council for Certification Bodies
NRA .....National Rivers Authority
PPG .....Planning Policy Guidance
PPP.....Polluter Pays Principle
QMV ..... Qualified Majority Voting
RICS..... Royal Institution of Chartered Surveyors
SME .....Small to Medium sized Enterprise

SIGs ..... Special Industrial Groups

SYBERR ..... System Based Environmental Risk Rating

TQM ..... Total Quality Management

UCO ..... Use Classes Order

WDA ..... Welsh Development Agency

WIA ..... Water Industry Act

WRA ..... Water Resources Act

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Introduction

Investors are concerned with the risk/return profile of property investments. Consequently, when purchasing a property, investors will have an interest both in the level of expected return, **and** the risk that actual returns will deviate from those which are expected. There are a number of factors which can influence both the level and variability of return produced by property investments. These can be listed as sources of property investment risk (Baum and Crosby, 1995) and split between risks specific to individual properties and those which affect the property market as a whole (Waldy, 1990).

Although portfolio risk has received greater attention in the property research community (largely due to the belief that specific risk factors can be diversified away by adding more properties to a portfolio) recent commentators have argued that specific risk factors can have a dominant effect on property investment performance (Waldy, 1989 and Morrell, 1993).

This research project has been undertaken in the light of the existing work carried out into property investment risk. It argues that a new, and increasingly important, aspect of investment risk, specific to individual properties, has emerged. This is the risk associated with an occupying tenant's environmental performance. It argues that low levels of environmental awareness, and poor environmental legal compliance on the part of a tenant can result in property investments producing actual returns which diverge from those which are expected. The class of property most susceptible to this new element of investment risk, by virtue of the type of tenants occupying them, is industrial property, and as such, B1, B2 and B8 type properties are addressed within this thesis.

The sweeping changes which have been made to the regulatory regime, governing the way businesses conduct themselves in relation to the environment, are not only ones of detail, but represent a fundamental shift in the way the environment is considered by society. Institutional changes have taken place within the European Union (EU) which

have transferred protection of the environment from a peripheral concern of the EU, and placed it at the centre of policy objectives. The environmental developments discussed in this thesis, and the publicity surrounding them, have, to an extent, educated society in relation to environmental problems. This, in turn, has exacerbated the pressures on Governments and industries to reduce the impact of society's activities on the environment. Such developments manifest themselves as a series of pressures placed upon businesses to reduce their environmental impact, and it is inevitable that property investment will be affected. This work provides an understanding of how the increasing importance of environmental protection is affecting, and is likely to affect in the future, property investment performance.

Three main research aims were, therefore, developed:

1) to determine whether, and how, the environmental performance of an occupying tenant can impact upon property investment returns;

2) to determine whether, and how, the implementation of an Environmental Management System (EMS) by an occupying tenant can impact upon property investment returns;

3) to determine whether, and under which circumstances, actors in the property investment market concern themselves with the environmental performance of occupying tenants.

Only a few years ago it would have been possible to answer in the negative to all of the above: the environmental performance of a tenant would not have been capable of influencing the level and variability of return offered by a property investment; the concept of environmental management was virtually unheard of; and most property investors would have been indifferent at best towards something as imprecise as tenant environmental performance.

Times change. Increasingly property investors are aware that tenants can no longer be completely oblivious to their environmental impacts. The reason for this changing attitude is not that environmental damage is relatively new (degrading the environment has arguably gone on ever since man inhabited the Earth), but that society, and the legal regime which regulates it, has undergone fundamental change in the past five to ten years. It is this shift in society's concern for the environment which has been the catalyst for the extensive environmental regulations which have been introduced. These changes have provided the impetus for this research.

In order to satisfy the aims outlined above, it was considered necessary to adopt a qualitative approach to the research. Qualitative research is concerned with " ... individuals' own accounts of their attitudes, motivations and behaviour" (Hakim, 1989). It offers richly descriptive reports of individuals' attitudes, perceptions and beliefs towards the topic of study, and is often used when a subject is characterised by limited research activity.

Current research into environmental issues in relation to the property market has utilised qualitative techniques. In the context of the "greening" of the housing market, Rydin (1994) makes clear that the methodologies of the behavioural approach can provide a useful insight into the greening process. Such an approach has also been adopted by Parsa (1993). In attempting to assess the impact of environmental issues on commercial property, various actors - investors, developers and occupiers - were asked about their attitude towards certain specified environmental issues.

The use of behavioural research approaches has also been widely utilised by the "environmental management" research community recently. The use of questionnaires to determine companies' attitudes towards key environmental issues has become particularly popular. Such research includes Hillary (1991), Institute of Directors (1993) and Hillary and Millar (1994).

This research has made use of tape-recorded semi-structured interviews as the qualitative data collecting technique. This approach is not often associated with research into property investment risk. This type of work often requires quantitative techniques to be adopted. However, the research aims of this project were best suited to a qualitative approach, which included interviewing professionals in order to understand new and complex areas. Such an approach to a new area of research has been endorsed by King (1994).

The analysis of 40 hours of interviews, which were subsequently transcribed, was undertaken on computer software specifically designed to facilitate qualitative data analysis. This has enhanced the value of the results, and allowed the thesis to present original and worthwhile conclusions. A more detailed discussion of the methodological approach adopted is provided in Chapter Five.

In response to the first of the research aims, Chapter One reviews significant environmental developments, particularly in the field of environmental law. It reviews the fundamental shift in attitude towards the environment - resulting in ever-increasing demands being made upon companies to develop environmental strategies.

Chapter Two reviews the methods by which tenants are improving their environmental performance by introducing the concept of EMSs. It provides an outline of the main benefits received by property investors when the concept is included in the investment decision.

Chapter Three places the environmental performance of the tenant in the context of property investment risk. Since the inherent investment characteristics of property give rise to diversification difficulties within a portfolio, specific risk factors - such as a tenant's environmental performance - are likely to have an effect on the performance of property portfolios.

Chapter Four examines literature and case law in order to establish two important points in relation to this research. Firstly, it demonstrates that institutional and property investment company portfolios are unlikely to be completely devoid of potentially polluting tenants. Secondly, where environmental damage does result from the current activities of tenants, there is an increasing body of opinion which suggests that landlords will be liable for such damage.

Chapter Five evaluates the research methodology adopted in relation to the empirical work undertaken. The large amount of qualitative data collected has provided the researcher with a valuable insight into the workings of the property investment market and environmental risk. Thus, the conclusions drawn from the research are reliable because they are grounded in a significant amount of quality data which has been rigorously analysed. Volume II of this thesis contains complete copies of the interview transcripts.

Chapter Six presents empirical evidence indicating that a tenant's environmental performance can impact upon the level and variability of return offered by a property investment. This chapter also illustrates that the development of an EMS by an occupying tenant will, in the opinion of experts, reduce this element of environmental risk. The circumstances under which the various property investors consider it necessary to examine the environmental performance of a tenant is also presented.

Chapter Seven concentrates specifically on EMSs, and provides further evidence that the environmental risks faced by property investors will be reduced where occupying tenants have adopted such a system.

Chapter Eight presents the summary, conclusions, limitations and recommendations for further work.

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CHAPTER ONE

1:0 THE INCREASING IMPORTANCE OF ENVIRONMENTAL ISSUES

> *"I find it very difficult to sit idly by while certain aspects of conventional economic theory persist in jeopardising [our childrens' and grandchildrens'] chances of a reasonable existence on this planet. To fail to see the urgency of our situation; to fail to reconsider the way in which we account for our natural resources; and to fail to have the courage and the vision to take a precautionary approach, is to fail our descendants. The chances are they would never forgive us" (H R H The Prince of Wales, 1990).*

Chapter One of this thesis provides a comprehensive account of the changing attitude towards environmental issues. Institutional changes have been made within the European Union which have taken environmental initiatives from the periphery of European policy and placed them alongside central themes such as job creation and Europe's security. International agreements, for example, those made at the Earth Summit in 1992 are also reviewed. Most importantly (from the perspective of this thesis) however, are the pressures being placed upon commercial organisations to improve their environmental performance. These pressures emanate from many different and unexpected sources. Financial institutions and corporate customers have not been regarded as environmental pressure groups in the past, although they are increasingly placing demands upon companies to adopt greener trading practices.

1:1 THE INTERNATIONAL RESPONSE

A phenomenal rise in environmental awareness has occurred throughout the Western World in the last 25 years. This chapter traces the main developments, indicating that the international community is reconsidering conventional economic theories in an attempt to protect the environment. Any such reassessment of values will inevitably impact upon business and organisational life. Although no attempt is made to determine whether such responses are far-reaching enough to achieve sustainable development (since the United Nations Conference on Environment and Development - United Nations, 1992a - this has become the international community's intended aim), it is contended that changes have become so widespread, pervading all sections of society and the economy, that " ... the success of a company is becoming more and more dependent on its environmental performance" (Koechlin and Muller, 1992).

1:1.1 INFLUENTIAL REPORTS

Increased scientific knowledge concerning key environmental issues has led to the publication of many influential reports. The Club of Rome produced a "doomsday scenario" of a world rapidly running out of fundamental natural resources (Meadows *et* al, 1975). Although many of the predictions were shown to be misconceived, it has prepared the ground for further studies which have shifted the emphasis away from resource scarcity to pollution issues (Barney, 1980). These reports argued that mankind would destroy the natural environment, as a result of insufficient attention to pollution, long before the earth's natural resources would themselves be exhausted.

The most prominent environmental report ever to be produced is arguably the "Brundtland Report" (United Nations, 1987). This firmly established the concept of sustainable development as the basis for integrating economic theory with

environmental protection. The report contended that it is possible for economic development to satisfy the present generation's needs without compromising the chances of future generations to meet their own needs. This formed the basis for the widely accepted definition of sustainable development, " ... development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (*ibid*: 8).

In commentaries on the greening of the UK, it has been recognised that the combination of Chris Patten (Secretary of State for the Environment in the late 1980s and early 1990s) and David Pearce (Chris Patten's self appointed economic advisor) was probably the most crucial factor (Gray, 1990). Although it was the Brundtland Report which firmly established the concept of sustainable development, the work of Professor David Pearce has done much to popularise the concept in the UK. His most influential work "Blueprint for a Green Economy" or "The Pearce Report" (Pearce *et al*, 1989) has been described as adding " ... a vital dimension to our economic management of environmental concerns" (Patten, 1989). The theme throughout the report is the assertion and re-assertion that economies and their environments interact. It highlights that this interdependence exists because the way an economy is managed impacts on the environment, and the quality of the environment, in which an economy operates, also impacts on the performance of that economy.

Professor David Pearce's considerable experience in environmental economics ensured that market-based instruments would have a fundamental part to play in the recommendations made to the Department of the Environment for dealing with environmental degradation. The proposal that the UK should place more emphasis on market-based instruments was endorsed by the then Secretary of State for the Environment Chris Patten, and has been accepted as Government Policy ever since (see section 1:1.3). The manifestation of these economic instruments are various taxes and regulatory administrative charges and levies which have since been introduced into the UK in the name of environmental protection. Such an integration of environmental

values into economic decision-making is reviewed in the context of international developments in section 1:1.3.

1:1.2 THE EUROPEAN UNION

As this world-wide awareness of environmental issues has grown, the European Community (now the European Union) strengthened and refined its own environmental policy. The policies introduced were not simply recognition that the European environment needed to be protected, it was also realised that environmental issues were increasingly affecting the European Union's wider policy objectives. A clear example is the establishment of the "Single Market", the purpose of which is to break down trade barriers between Member States and thereby promote economic growth. It was recognised at an early stage that such growth would place extra demands upon the environment in terms of natural resource consumption and waste generation (Wilkinson, 1992 and Clifford Chance, 1992).

1:1.2.1 The Single European Act

Since the Treaty of Rome was born out of the unashamedly pro-growth consensus of the 1950s, and the political and social urgency to protect the natural environment had not arrived, no specific provisions were provided within it for the introduction of environmental policies (Integrated Environmental Management, 1992). Environmental legislation was, therefore, introduced under general provisions of the Treaty: under Article 100 where an environmental directive was required to harmonise national law directly affecting the establishment or functioning of the Common Market, and under Article 235 where the measure in question was necessary to attain one of the objectives of the EU Treaty (Vinten, 1991 and Kramer, 1990). This position radically changed with the introduction of the Single European

Act (SEA) in 1986. Title VII was added to part III of the Treaty of Rome and introduced explicit environmental law-making powers (Slynn, 1993).

Articles 130r, 130s and 130t were, therefore, introduced by the SEA and provide a legal basis for environmental protection laws, even where no direct link to economic aims exist. Article 130r provides that Community action on the environment shall be based on the principles of " ... preventative action, source reduction and the polluter pays" (Klatte, 1992). This Article is a very important part of the EU environmental policy since it enshrines into EC law the "integration principle" which was first introduced into EU environment policy by the Fourth Environmental Action Programme in 1982 (*ibid*: 122). Article 130s provides for the adoption of environmental measures by unanimity or by qualified majority voting, and 130t allows Member States to maintain or introduce stricter environmental measures compatible with the Treaty (Shorey, 1992).

1:1.2.2 The Maastricht Treaty

The SEA provided a major boost to the Community's environmental policy when it included in Article 130r(2) the provision that environmental protection requirements *shall* be a component of the Community's other policies. The Maastricht Treaty (European Commission, 1992a) ratified on 1st November 1993, clarifies and extends this requirement by stating that

> "Environmental protection requirements *must* (emphasis added) be integrated into the definition and implementation of other Community policies" (ibid).

This subtle, but important, change reinforces how the environment has moved from a peripheral concern of the European movement in the 1950s to a fundamental

requirement of EU policy in the 1990s. The requirement that environmental protection must be a component of all other policies is very significant, since it is recognition that measures in the sphere of other policies will normally have a positive or negative impact on the environment (Welford, 1992). This supports Ledgerwood's argument that there is now a consensus view which recognises the need for the pursuit of economic growth and environmental sustainability based on the simple fact that without an environmental support system no economy is possible (Ledgerwood *et al*, 1992). It should also be recognised that this emphasis on the integration of environmental policy is further stressed in the EU's Fifth Environmental Action Programme and is central to the aim of Agenda 21, the most important agreement of the Rio Summit in 1992. (Both of these initiatives are discussed below).

The other major policy change which the Treaty on European Union introduced concerns the process through which environmental legislation can be introduced. As discussed above, since the SEA, two separate methods for agreeing EU environmental legislation have been available - Article 130s, which required that specific environmental measures adopted were on the basis of unanimity, and Article 100a, which required that the adoption of legislation which affected the operation of the internal market (sometimes including environmental legislation) was to be introduced on the basis of qualified majority voting (QMV). The Treaty on European Union has in effect extended the scope for QMV to most areas of environmental policy under Article 130s (ENDS Report, 1993a and Wilkinson, 1992). Such a policy removes the ability of a Member State on its own to veto a proposal for environmental legislation. (It is acknowledged, however, that important areas of environmental legislation, introduced under Article 130s, will still be subject to unanimity, for example, provisions primarily of a fiscal nature, and land use nature). However, this should be offset against an important ruling by the European Court of Justice (Case C-300/89). This significantly widens the scope for environmental legislation to be introduced under Article 100a - on the basis of QMV - in the name

of harmonising standards across Europe to create the level playing field for the operation of the free market (See Wilkinson, 1992).

1:1.2.3 EU Environmental Action Plans

The fulfilment of a major promise of the SEA, namely the integration of environmental policy into other areas of EU policy, manifested itself in the Fifth Environmental Action Programme (entitled "Towards Sustainability") (European Commission, 1992b). Although the programme was not a legislative document, it was a statement by the Commission of their environmental intentions over the following seven to eight years. Due to run from 1993-2000 it is a departure from the four previous programmes (ENDS Report, 1992a). Previously Environmental Action Programmes (EAPs) were very much reactive, "end of pipe" strategies, responding to environmental problems after they had occurred. The Fifth Action Programme is much more proactive, and its aim is to promote "Sustainable Development" as put forward by the 1987 Brundtland Report (Barnes, 1992).

The action programmes adopted by the EU in the past have relied on a policy of regulation and the use of EU directives which were handed on for implementation to Member States. This legislative top-down approach has not been as successful as first hoped, with differing attitudes throughout the EU in relation to implementation leading to interpretation problems for industry. The Fifth EAP presents a new orientation for EU environmental policy and seeks to increase the use of market based instruments to encourage further the protection of the environment by industry and consumers.

1:1.3 MARKET BASED INSTRUMENTS

As early as 1975, members of the Organisation for Economic Co-operation and Development agreed to the "Polluter Pays Principle" (PPP) (OECD, 1975), which states that polluters should bear the full cost of any damage caused by the production of goods and services (Schmidheiny, 1992). This marked the beginning of a discipline commonly referred to as "environmental economics". This rapidly expanding area of economic theory contends that in order for sustainable development to achieve its aims, it is necessary " ... to ensure that environmental values are integrated into economic decision-making" (Pearce *et al*, 1989: 122).

It is argued that by attaching prices to environmental assets, economic instruments (also referred to as market based instruments or MBIs), can overcome the problem of externalities (Department of the Environment, 1993). An externality is one example of market failure which arises where one person's actions impinge on other people's well-being in ways that are not reflected in prices. By attributing a price to the environmental damage an economic activity causes, the value of environmental assets used is allowed for in the production process in the same way as other input costs: producers are given a choice between investing in pollution abatement or paying to pollute the environment. Ultimately the higher production costs of those processes which are the most heavily polluting will discourage consumers from buying their products and seek cleaner alternatives (See Gee, 1994, Gandy, 1993, Coyle, 1992, and Turner, 1992). (For a full account of the contention that conventional economic theory has failed categorically to take account of the environmental costs imposed by society see Daly and Cobb, 1990, Pearce, 1991, Senge, 1993, and Suzuki, 1994).

In 1991 a review of the prevalence of economic instruments in OECD countries found that throughout the 1980s and 1990s there has been an increasing interest in their use as a means to secure environmental protection (OECD, 1991, see also Schmidheiny, 1992). More recently the OECD has also argued for countries to

switch the burden of taxation to consumption and environmental taxes (Goodhart and Balls, 1994). The possibility of a European-wide carbon tax, although not imminent, can by no means be ruled out altogether since it has been the centre of much debate in the Union for some time (European Union, 1990, and Tromans, 1992). The general concept of shifting the burden of taxation away from labour and capital and towards pollution and resource consumption has also been advocated by the European Commission, most notably in a White Paper on growth, competitiveness and employment (European Commission, 1994).

1:1.3.1 The UK Government

In the years ahead, it is likely that the UK Government will introduce more MBIs in order to reduce environmental damage. The White Paper, This Common Inheritance, (Department of the Environment, 1990) was the first ever review of Britain's environmental policy. Annual reports have followed which have outlined the latest Government thinking on the environment and indicated clear policy intentions for the future

> "Economic instruments are an inherently more flexible and cost effective way of achieving environmental goals [than regulation]. The Government believes that the time has now come to deploy them more fully to achieve environmental objectives ... In future there will be a general presumption in favour of economic instruments" (Department of the Environment, 1992).

The second year report (*ibid*) considered four market based instruments for possible introduction: a carbon tax to reduce CO_2 emissions; incentive charging for water abstraction and discharge consents; quota switching to reduce emissions to the atmosphere of SO_2 and NO_x; and incentives to increase re-use, recycling or minimisation of waste (Gandy, 1993: 9). A guide to the use of economic instruments in environmental policy was published by the UK Government in 1993 (Department

of the Environment, 1993) and reaffirmed its intention to rely on such an approach in the future. In April 1994 John Gummer, the Secretary of State for the Environment, became the first UK Minister to voice public support for a shift in the burden of taxation towards pollution and resource use (ENDS Report, 1994a).

Two examples of economic instruments already in use in the UK are:- VAT on domestic fuel and power; and higher road fuel duty. A further two are being seriously considered by the UK Government. The possibility of introducing a trading scheme for SO_2 emissions was first suggested in the Government's 1992 White Paper and discussed again in its "guide to the use of economic instruments". The Government has very recently made proposals for a landfill tax, requiring a tax to be levied upon the waste that is deposited at landfill sites (Lascelles, 1995a). The proceeds from this economic instrument will be used to cut national insurance contributions, indicating a switch in the burden of taxation away from labour and on to pollution.

It is also important to recognise that certain pieces of UK environmental legislation, although not considered to be economic instruments, are, nonetheless, designed to alter the behaviour of industry by making polluters pay for the environmental damage that they cause. This was a central theme of This Common Inheritance (Department of the Environment, 1990) in the context of contaminated land. For example paragraph 6.64 stated that

> It is important to try to prevent land becoming derelict or contaminated in the first place ... On the basis of the Polluter Pays Principle, those causing contamination and dereliction should pay for the costs of putting it right.

A closer examination of environmental legislation is provided in Chapter Four. However, it is useful at this stage to discuss briefly the legislative developments which have resulted in pollution taxes and charges acting as economic incentives or disincentives to alter the conduct of business operators. In taking account of the PPP, UK legislation has been updated, particularly with regard to operations which require

to be registered under the Environmental Protection Act 1990, the Water Industry Act 1991 and the Water Resources Act 1991. The widespread use of full cost recovery charging for consents to operate under such legislation is a clear example of the PPP. The purpose of such charging schemes is to ensure that the full costs of pollution control are met by the polluter. To satisfy the principle, it is considered essential that polluters should also pay towards the administrative costs of the regulatory system and enforcement of the regulatory controls. These regulatory controls are also backed up by the threat of criminal penalties for their breach, and of course significant liabilities can also be imposed under civil law (Shelbourn, 1994).

The application of Best Available Techniques Not Entailing Excessive Cost (BATNEEC) to businesses which are covered by Integrated Pollution Control and Local Authority Air Pollution Control, is an example of an economic instrument combined with legislation. The operator of a process which qualifies under the system will have to apply to the relevant statutory regulator in order to obtain an authorisation to operate. Such processes are also required to comply with the best technology available at that date in order to maintain emissions to a minimum. In effect, therefore, the operator is paying for the privilege to pollute the environment, with the prospect of high financial penalties where BATNEEC or any other condition of the authorisation is transgressed. In this sense, those operators who can carry on their economic activity with less damage to the environment will receive a competitive advantage, whilst ignoring the legislation could " ... be a sufficient condition for business failure" (Welford and Gouldson, 1993).

1:1.3.2 The European Union

As outlined above, the European Union, by virtue of the SEA of 1986, introduced new articles into the original Treaty of Rome dealing specifically with the environment. Article 130r (2) states that action on the environment by the Union will be based on three principles, one of which is that the polluter should pay for environmental damage caused, and this of course has been very influential in the

UK's introduction of environmental legislation over the last few years. The EU has also made specific proposals in attempting to apply the PPP to which it now subscribes. The Commission of the European Union has proposed a Directive on Civil Liability for Damage Caused by Waste (European Commission, 1991) and, perhaps even more significantly, has also proposed a "Green Paper" on remedying environmental damage (European Commission, 1993). Both of these proposals would impose a strict liability regime upon the parties responsible for causing environmental damage, and are based on the fundamental tenets of preventative action and the PPP enshrined in the EU Treaty by Article 130r of the SEA (Tromans and Turrall-Clarke, 1994: 111).

It is apparent that at the international (see United Nations, 1992b), European and UK levels, there is a move towards making polluters pay for the environmental damage that they cause. This can, of course, manifest itself in well-publicised policy proposals such as the Government's initiative on contaminated land in the Environment Bill[1], as administrative charges faced by companies under various parts of the Environmental Protection Act, Water Resources Act and Water Industry Act, or as a general tax on landfill waste.

1:1.4 THE EARTH SUMMIT 1992

Most responsible commentators would accept the urgency for international co-operation in resolving the immense environmental problems facing mankind (Guruswamy, 1991). The UN Conference on Environment and Development (United Nations, 1992a) (also referred to as "the Earth Summit" and "Rio 1992") was a gathering of 185 representatives of countries who met to discuss proposals for ameliorating this environmental damage, and as such, it was the largest gathering of world leaders ever witnessed (Hughes, 1992).

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[1] The Environment Bill received Royal Assent on 19th July and has become The Environment Act 1995. There were no major changes to the Bill in relation to this thesis.

It was at this conference that much negotiation and commitment in the preceding months to the summit were rewarded with the adoption of Agenda 21, the Rio Declaration and the Statement of Forest principles. (The Statement of Forest principles is not of direct interest to this work and is not discussed further). The other two agreements, however, have potentially large ramifications for commerce and industry even though they are not legally binding. They are, nonetheless, international political agreements made at the highest possible level and add considerable pressure to governments to introduce environmental initiatives into their countries to secure sustainable development.

The Rio Declaration, which was a statement of environmental rights and obligations, set out 29 broad principles for the achievement of sustainable development upon which every participant agreed (Welbank, 1994). It endorses important principles such as the precautionary approach, the PPP, and public access to information.

The principal output of the Earth Summit was Agenda 21, which comprises some 40 Chapters and totals over 600 pages, and reflects global consensus and political commitment to the theory that the environment and other policy issues are inextricably linked. It attempts, "...to specify the actions that will be needed ... to achieve sustainable development (i.e. to integrate environmental, economic and social concerns in a way which values and protects the environment)" (Pangbourne, 1993, see also Chapter eight of Agenda 21).

As well as Agenda 21 committing Governments to making visible progress in environmental protection, the UN Commission on Sustainable Development receives reports from all countries on an annual basis to monitor their progress in achieving the Agenda's principles (Maddox, 1993). The UK Government has submitted reports to the Commission outlining the progress being made within this country (Department of the Environment, 1994).

1:1.5 A SUMMARY OF THE INTERNATIONAL RESPONSE

The significance of the international initiatives which have been introduced over the last 20 years as a response to the environmental problems facing mankind should not be underestimated. They will influence the way businesses, from all sectors of the economy, carry out their activities over the next decade and beyond. It has been agreed at international, European and national levels that:

- sustainable development is the basis for integrating economic theory with environmental protection;

- environmental protection will form an essential component of all policies;

- the Polluter Pays Principle is a fundamental component of any strategy to protect the environment; and

- market-based instruments and regulatory controls will continue to be introduced to alter the behaviour of all sections of the economy and society.

Ultimately what is being demanded of business organisations is the integration of the economic and the environmental decision-making processes. This has manifested itself in a number of different ways, providing businesses with both threats and opportunities. It is a major contention of this thesis that those tenants combining environmental performance with good business will flourish, since they will either avoid, or minimise, the increased costs which the international consensus now ensures will be associated with degrading the environment.

1:2 ENVIRONMENTAL PRESSURES

It is inevitable, given this commitment by the international community to protect the environment, that many and varied pressures are consequently placed upon the business community to improve their environmental performance. The remainder of this chapter highlights these pressures and suggests that companies which do not commit themselves to a programme of environmental improvement will incur financial penalties for not doing so.

1:2.1 PEER PRESSURE

In 1992, 48 major business leaders throughout the world (out of the 50 who were approached) signed a declaration made by the Business Council for Sustainable Development which was subsequently presented at the Earth Summit in Rio (Schmidheiny, 1992). This Council was set up, at the invitation of the Secretary General of the 1992 UN conference on Environment and Development, in order to stimulate the interest of the international business community in the concept of sustainable development. The declaration makes depressing reading for those in the commercial world who believe that environmental criteria are not an important part of future corporate activity.

> " ... the prices of goods and services must increasingly recognise and reflect the environmental costs of their production, use, recycling, and disposal. This is fundamental and is best achieved by a synthesis of economic instruments designed to correct distortions and encourage innovation...regulatory standards to direct performance, and voluntary initiatives by the private sector" (Business Council for Sustainable Development, 1992).

In 1990 the International Chamber of Commerce launched its Business Charter for Sustainable Development (ICC, 1990). The Charter, endorsed by over 1,000

companies world-wide by 1993, encourages organisations to commit themselves to improving their environmental performance in accordance with the Charter's 16 principles. Companies wishing to undertake business with those signed up to the Charter should be aware of principle 11 which states that signatories are to encourage, and where appropriate, require contractors and suppliers to adopt similar environmental improvement policies (*ibid*). The Business Charter list includes 36 companies in the top 50 fortune list, 58 companies out of the top 100, and 137 out of the top 500 as a whole (ICC, 1993).

At a national level, the Confederation of British Industry is also urging its members to improve their environmental performance, and has taken a leading role in promoting the environment as a major business issue (Confederation of British Industry, 1990). It is supportive of this thesis that the CBI view its role to ensure the competitiveness of British business in world markets as complementary to its role in promoting environmental best practice throughout British industry (Confederation of British Industry, 1992).

The Chemical Industries Association Responsible Care Programme (see Gray *et al,* 1993) was introduced to improve the sector's environmental performance in an attempt to avoid the introduction of even tougher legislation from national governments (Tombs, 1993). The international consensus discussed in the first part of this chapter, has clearly brought about significant changes within this particular industrial sector. There can be little doubt that chemical companies, in order to survive, must take account of environmental issues. As the Chief Executive of Dupont remarked,

> "The future of the chemical industry will be directly shaped, and indeed may ultimately be determined by environmental issues" (Woolard, 1990: 738).

However, the peer pressure to adopt working practices which minimise damage to the environment has by no means been peculiar to the chemical industry. As several commentators have made clear, the purchasing managers of large and small, private

and public, organisations are increasingly exerting influence over companies to provide environmentally sound products and services (See Gray, 1990, Owen, 1993, Welford and Gouldson, 1993). The advances made in guidelines for selecting greener companies and products (Association of Metropolitan Authorities, 1993 and Department of the Environment, 1991, Business in the Environment, 1992, see also ENDS Report, 1994b) have done much to provide the tools for companies to make environmentally informed choices. In particular, local government has played a leading role in applying pressure to organisations in requiring certain environmental standards before awarding contracts. Indeed, Chapter 28 of Agenda 21 introduced Local Agenda 21 which has been adopted by many local authorities in the UK. This requires them to enquire about suppliers' environmental performance prior to awarding contracts (Pangbourne, 1993).

The list of private companies, principally large plcs, enquiring about the environmental probity of potential suppliers, also continues to increase (Burnett-Hall, 1994, Gray, 1990, see also Principle 11 of the Business Charter for Sustainable Development by the ICC, 1990). This results in pressure passing down the supply chain to many different types and sizes of organisations who may, in the first instance, appear to be insulated from the environmental firing line (Martinson, 1994).

1:2.2 CONSUMER PRESSURE

The pressure of green consumerism is a vital component of the environmental pressures facing business. Gray *et al*, (1993) considers that environmentally motivated consumption will have an increasing effect on corporate behaviour. Such an argument is given weight by the fact that consumers appeared to continue to make environmentally-informed purchasing decisions during the recessionary years of the early 1990s (see ENDS Reports 1991, 1992b, 1993b and 1993c). In the same manner that corporate purchasing guides are aiding corporate buyers to make environmentally-informed purchasing decisions, the consumer is now receiving advice from publications such as "The Green Consumer Guide" (Elkington and

Hailes, 1988) and the European Eco-Labelling Scheme (European Commission, 1992). With the infrastructure in place to facilitate the purchasing of products which perform to recognised environmental standards, and the next generation of consumers having received an education with a far higher environmental content than ever before, the green consumer is anything but a passing fad. (See Harding, (1995) for an example of consumers responding to a product with an eco-label which resulted in the product improving its market share).

To assess the need for environmental awareness and understanding in the work force, and how further and higher education (FHE) institutions might respond, the Government set up an expert committee on environmental education. The result was the Toyne Report which recommended that it was necessary for FHE institutions to promote environmental education across the curriculum (Department of Education, 1993). As Houldin (1989), Elkington *et al*, (1991) and Gray *et al* (1993) have commented, the environmental posture of their potential employer may well be important to young graduates with a heightened environmental awareness. The introduction of the Toyne Report's recommendations throughout the UK FHE system makes it more certain that, at least to some extent, high quality graduates will seek greater environmental probity from their employers. (See Gray *et al*, (1993) for evidence from the USA which suggests that environmental concern is of increasing significance in highly competitive markets for the best qualified personnel).

1:2.3 INVESTOR PRESSURE

It has been noted that sustainable development will require companies to integrate environmental and economic decision-making (Pearce *et al,* 1989). As environmental costs are being internalised, through the workings of the PPP, the investment and insurance industries are beginning to incorporate the environmental performance of companies into their decisions (Ledgerwood *et al*, 1992). A survey undertaken by James Capel in 1990 found that " ... more than a third of fund mangers

take environmental factors into account in reaching investment decisions" (Thomas, 1990: 3, see also Knight, 1992). Other commentators agree that

> " ... as more attention is being paid to the environment, fund managers will become anxious to monitor the environmental performance of the companies in which they invest" (Bade, 1991: 27).

Investors are aware that the environment can now impact on their investment performance. After Exxon were found guilty of recklessness over the United States' worst oil spill in 1989 they incurred costs approaching $20 million (Weaver, 1994). Beazer, the UK construction and building group, made provisions of US $502m for toxic contamination at 74 facilities owned and operated by its US subsidiary Koppers (Accountancy, 1990). Furthermore, investors themselves are obviously forming decisions on such information. When T & N announced that it was making a £100 million provision in its accounts against future asbestos claims - associated with its former asbestos producing operations - its share price fell by 25% in two days (Davies, 1994).

This clearly shows two important points. Firstly, that polluting the environment can cost an organisation dear, and secondly, that investors are beginning to take this into account in the price they are willing to pay for an interest in a company.

The Institute of Chartered Accountants has expressed concern that accountancy rules, stipulating that contingent liabilities, such as potential clean-up costs, should be reported in annual accounts, are not being observed. It also argued that since the environment is increasingly being turned into a factor that carries costs it should become a part of regular accountancy reporting (Institute of Chartered Accountants, 1992).

The recognition that environmental issues can impact on investment performance, combined with a frustration that the necessary information was not being provided to the financial markets, led to the development of two important environmental risk rating systems (See Centre for the Study of Financial Innovation, 1993, and Risk Opportunity and Intelligence, 1994). Both of the systems attempt to combine the prospect of companies incurring environment-related losses with information on credit ratings, thus providing a simple guide to the downside risk for investors.

The development of such guides will address one of the largest constraints on the financial markets' consideration of environmental issues in investment decision-making. Since investors accept that global environmental issues can impact upon the performance of different industrial sectors, it has been argued that the provision of adequate information with which to evaluate companies and investments will result in the widespread use of environmental considerations in investment decision-making (Schmidheiny, 1992, House, 1993 and Lascelles and Knight, 1994).

1:2.4 BANKING PRESSURE

Where its customers suffer environment related loss, a bank could be faced with defaults in repayments and the reduction in the value of security held as collateral, particularly where environmental damage has been caused to the land resulting in the contamination of land (Shutter, 1993). However, banks also face the prospect of becoming directly liable for environmental damage caused by their customers where they have taken back security. Barclays Bank has already been faced with a £6 million clean-up bill for a site held as collateral, and there are reports that other British banks have quietly walked away from similar situations (House, 1993). This has led some to argue for banks to receive a 'secured lender exemption' providing them with a kind of insurance policy against possible environment-related loss provided that they have exercised due diligence in the exercising of the loan (Thompson, 1992). However, at the moment it appears unlikely that the UK

Government will be willing to offer such protection to banks, and the latest Government proposals for liabilities concerning clean-up liabilities for contaminated land certainly suggests that banks could become liable.

> "Lenders should not expect to be relieved of all risk in relation to the sums they advance. Nor should they, or other persons exercising control of land or a business, be relieved of responsibility where, in exercising functions, they had caused or contributed to the damage. They should also take proper care in entering into the roles specified and in the way they carry them out, including their material influence over the actions of clients, associates or agents" (Department of the Environment and Welsh Office, 1994: 10).

Several commentators have discussed the prospect of lender liability for environmental damage as a result of existing and proposed UK and EU environmental legislation (Fordham and Jarvis, 1993, Deanesly *et al*, 1993, and Napier, 1992a and 1992b). The most comprehensive study of the issue is Fordham's 1993 work which examines the relationship between banks and borrowers in the context of various pieces of environmental legislation. He warns banks of the danger of becoming involved in the management decisions of their customers, arguing that they can attract direct environmental liabilities for doing so. (See also Napier, 1992a and 1992b, which present a number of scenarios under which environmental liabilities could be imposed upon banks as a consequence of their relationship with the borrower).

Given that banks have recognised that existing and prospective environmental legislation pose additional risks to their role as providers of finance to industry and commerce, it is not surprising that they are requiring more environmental information from applicants before advancing loans. In order to protect themselves, all the UK clearing banks had, by 1992, introduced procedures to assess customers' environmental records before advancing a loan, and to keep watch until it is repaid

(Lascelles, 1992). A recent survey undertaken by the United Nations Environment Programme found that four-fifths of the world's leading commercial and investment banks perform some degree of environmental financial risk assessment of borrowers before agreeing to lend them money (Lascelles, 1995b). (See also Tromans and Turrall-Clarke, 1994, and Deanesly *et al*, 1993 for detailed discussions of the amendments that banks have made to normal lending practices to take account of the environmental risks they face). As a result of these developments it is likely that

> " ... companies which cannot demonstrate a high level of environmental performance associated with low environmental risks will find it increasingly difficult and expensive to attract and retain investment and insurance for their operations" (Welford and Gouldson, 1993: 10).

Such arguments were borne out by an Advisory Council for Business and the Environment survey (1992) which found that companies can reduce the costs of finance and insurance by improving their environmental performance.

1:2.5 LEGISLATIVE PRESSURES

The earlier part of this chapter outlined the international consensus that has developed with the intention of protecting the natural environment from the worst effects of pollution and degradation. Although the international community, the EU and the UK Government have all indicated their faith in the ability of economic instruments to deliver environmental improvements, the principal component of environmental protection remains regulation. The UK government acknowledged in 1990 that " ... administrative controls will for the foreseeable future remain at the heart of Britain's system of environmental control" (Department of the Environment, 1990: Annex A).

With growing importance attached to environmental protection by the EU - since 1974 more than 200 environmental regulations have emerged from the European Commission (Berry, 1993) - it was inevitable that this would have a major influence on the development of UK environmental law. The British Parliament has provided central and local government and its various agencies with markedly increased powers of control, mainly exercised by prior authorisations and licences. Foremost amongst this new legislation is the Environmental Protection Act 1990 (EPA), which was quickly followed by the Water Resources Act 1991 (WRA) and the Water Industry Act 1991 (WIA). Other pieces of environmental legislation are also in operation but it is considered that the above cover the " ... areas of most general interest" (Fordham and Jarvis, 1993: 44).

Under the Integrated Pollution Control provisions of the EPA, companies involved in major polluting processes are required to obtain authorisations in order to continue operating. Furthermore, operators carrying on such a prescribed process must ensure that the BATNEEC requirements are satisfied. The Act also provides that the term is intended to apply not just to technological matters but to the level of staffing and training (Rowan-Robinson and Ross, 1994) which clearly requires operators to improve their environmental performance in order to comply with legislation.

There are other demands made by these regulatory controls, many of which are covered in Chapter Five where an investigation into tenant activities is undertaken. However, all of the controls will demand a heightened sense of environmental awareness from businesses, with requirements for licences and authorisations to be obtained, procedures to be in place to ensure compliance once licences and permits have been secured and even an awareness of how other parties are practising in order to avoid prosecution (See *ibid* and Pugh-Smith, 1992, for a full discussion on the demands that the major pieces of environmental legislation have brought to business).

The establishment of the Environmental Protection Agency, upon the successful passing of the Environment Bill through Parliament, combines the powers of the main regulatory authorities. Such an Agency supports the National River Authority's and Her Majesty's Inspectorate of Pollution's policing duties.

1:3 SUMMARY

Ball and Bell (1991: 101-102) have argued that the changes made to the regulatory system are not solely ones of detail, but reflect the fundamental shift in the way that environmental problems are perceived by the public and Government alike. In order for operators of all types and sizes, occupying various types of property, to avoid falling foul of the PPP, in the form of ever increasing levels of fines under various legislation, or by paying for higher energy costs, waste disposal costs or raw material costs, it is paramount that they improve their environmental performance (Garbutt, 1992, and Turner, *et al*, 1994).

This chapter has provided evidence that such developments have created threats and opportunities for all commercial organisations. It is important for property investors to recognise that tenants, (existing or prospective) particularly where potentially polluting activities are to be carried out on the landlord's property, require a strategy to address the environmental concerns of interested stakeholders.

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CHAPTER TWO

2.0 ENVIRONMENTAL MANAGEMENT SYSTEMS

The previous chapter outlined the significant pressures which are being placed upon businesses to improve their environmental performance. An increasingly popular method by which companies are achieving environmental improvements is by developing Environmental Management Systems (EMSs). The purpose of this chapter is to introduce the concept of EMSs. It examines the recent EMS standards which have been introduced, and which have provided the opportunity for organisations to receive external verification concerning their environmental performance. The main arguments are outlined for supporting the contention that, under certain circumstances, the adoption of an EMS by a tenant will reduce the level of environmental risk inherent in property investments. These arguments are subsequently expanded in the following chapters.

2.1 HISTORICAL DEVELOPMENT

It is increasingly recognised that the environmental pressures facing commercial organisations can only be addressed by the development of EMSs (Hunt and Johnson, 1993, Gilbert, 1994, and Spedding, *et al*, 1993). It is not a coincidence that the increased interest in environmental management displayed by businesses in environmental management occurred against a background of increasingly stringent legislation and the development of economic and fiscal measures to foster environmental protection. By the late 1980s and early 1990s many companies, and trade associations, realised that one-off checks on environmental compliance, and unsubstantiated claims to have green policies, were no longer satisfactory to enjoy the full support of discerning stakeholders interested in their businesses.

On their own, one-off "environmental reviews" cannot provide companies with the assurance that their environmental performance not only satisfies, but will continue

to satisfy, legislative and policy requirements. The environmental review is a snapshot in time of a company's activities in relation to the environment, and it is a term which is often used to describe a company's first attempt at assessing potential environmental problems. For example, it may for the first time assess any potential non-compliance with legislation or attempt to establish the largest impacts the company has on the environment. This does not, however, provide the company with the assurance that future compliance will continue, or indeed, that its largest environmental impacts will remain the same. In order to be effective, therefore,

> "such reviews need to be conducted within a structured management system, integrated with overall management activity and addressing all relevant aspects of environmental performance" (*ibid*: 15).

The recognition that organisations needed to develop policies that went beyond *ad hoc* environmental initiatives in order to satisfy the wide range of stakeholders now interested in their environmental credentials, has brought about a significant interest in the concept of environmental management and environmental auditing (Gilbert, 1993).

The first environmental audits can be traced back to the US, where in the 1970s companies developed them as a strategy against domestic liability laws. At regular intervals, an audit would be undertaken to ensure regulations were complied with. During the 1980s these audits were extended beyond simple compliance audits, and have become progressively more proactive. Today environmental auditing is considered to be a series of activities to evaluate environmental performance, to check compliance with environmental legislation and to assess whether the systems in place to manage environmental improvement are effective. These audits are undertaken at regular intervals to assess the environmental performance of a company in relation to its stated objectives and environmental policy. As such, the environmental audit is now being viewed as an integral part of an environmental management system (See Welford and Gouldson, 1993: Chapter Six).

The International Chamber of Commerce (1989) have provided a definition of an environmental audit:

> "A management tool comprising a systematic, documented, periodic and objective evaluation of how well environmental organisation, management and equipment are performing with the aim of helping to safeguard the environment by: (i) facilitating management control of environmental practices; (ii) assessing compliance with company policies, which would include meeting regulatory requirements."

It can be seen that environmental auditing has developed from the early 1970s and, like financial auditing, the emphasis is on regular checking of performance, and has therefore a broader remit than the assessment of compliance with regulations.

It was because of the recognition that in order to be effective audits had to be grounded in an integrated system of management activity, and in particular, the " ... concern from industry about how to respond to the upsurge of green issues generally" (Fowler, 1993) that the British Standards Institution (BSI) introduced BS 7750 (BSI, 1992). Indeed, the Confederation of British Industry invited BSI to consider developing an EMS standard, compatible with BS 5750 - the quality assurance standard, for the benefit of its members (Hunt and Johnson, 1993). Furthermore, a survey undertaken by the British Chamber of Commerce (1994) found an increasing interest in BS 7750 amongst small and medium sized enterprises (SMEs), a group that generally place the environment low down on their list of priorities (Welford, 1992).

The historical development of the world's first standard on environmental management is further evidence of the commercial pressures being placed upon companies to improve their environmental performance. Over a period of 20 years, the environmental policies of commercial organisations have been transformed. What began as one-off environmental reviews to test the regulatory compliance of US corporations, have developed into regular proactive environmental audits to measure the environmental performance of participating companies throughout Europe and the US.

These regular environmental audits have subsequently become one very important component of a comprehensive approach to environmental management. This is recognised by BS 7750, where the environmental audit makes up one part of an EMS and is described as

> "A systematic evaluation to determine whether or not the environmental management system and the environmental performance it achieves conform to planned requirements, and whether or not the system is implemented effectively, and is suitable to fulfil the organisation's environmental policy and objectives" (British Standards Institution, 1994: paragraph 3.7 page 5).

The change in title of the Eco-Management and Audit Scheme (EMAS) (Commission of the European Communities, (1993) away from the "Eco Audit Scheme" reflects the fact that the " ... scheme focuses not just on environmental auditing but also on environmental management" (Hillary, 1993a). It is because of such developments that " ... businesses are coming to realise that it is the environmental management system which should be at the centre of the organisation and that environmental auditing is an integral part of that system" (Welford and Gouldson, 1993: 121). Cahill, (1992) also considers that the environmental audit should be used as verification of the existence and use of an appropriate EMS, and as such the concept should not be considered as a substitute for good site environmental management.

2:2 BRITISH STANDARD 7750

When BS 7750 was published, in 1992, it was the world's first environmental management standard which covered every aspect of environmental management. At the time of its publication, it was argued (and this was subsequently proved to be correct) that BS 7750 would form the basis of European and international standards expected in the next few years (Gee, 1992, and Sheldon, 1992). The compatibility of

BS 7750 and the other EMSs standards is discussed in sections 2:3 and 2:4, and it is argued that they are very similar to one another, particularly, BS 7750 and EMAS.

Due to the compatibility between the systems, this thesis concentrates on the BS 7750 standard in determining any potential relationship which may exist between the level of environmental risk attached to a property investment and the implementation of an EMS by an occupying tenant. The BS 7750 standard is, therefore, reviewed in detail below and the European and international standards are outlined only to highlight the differences between the standards. It should be remembered that a fundamental aim of this thesis is to determine whether the EMS concept will influence the level of environmental risk which exists at certain properties; by examining BS 7750 for EMSs it is possible for this investigation to be undertaken.

The BS 7750 standard

> " ... is designed to enable any organisation to establish an effective management system, as a foundation for both sound environmental performance and participation in 'environmental auditing' schemes (British Standards Institution, 1994: 2).

The standard is a management tool which allows an organisation to establish procedures to set environmental objectives, to achieve compliance with these objectives and last, but perhaps most important, to demonstrate to all interested parties this compliance.

BS 7750 is generic - it applies equally to a factory or a hospital - and it is a system based on documented procedures. It does not attempt to set environmental performance criteria, rather compliance with the standard is centred on the ability of management to meet its own stated objectives, which will, in turn, improve its environmental performance. Central to the system is the recognition of the need for regular auditing and a continuous cycle of improvement which in itself will lead to a redefinition of the company's environmental policies and objectives. (ENDS Report, 1992, Turner *et al*, 1993a and Turner *et al*, 1993b).

To achieve certification to BS 7750, an organisation must satisfy the principal ten requirements of the standard. These are outlined below, and are also represented as a flow chart in Figure 2.1. Despite this flow chart presentation, many of the stages may be addressed concurrently or revisited at any time. The commitment and preparatory review are not formal parts of the standard, nonetheless many commentators have acknowledged their importance in developing EMSs and achieving BS 7750 certification (See Gilbert, 1993: Chapter Five and Welford and Gouldson, 1993: 90 - 91).

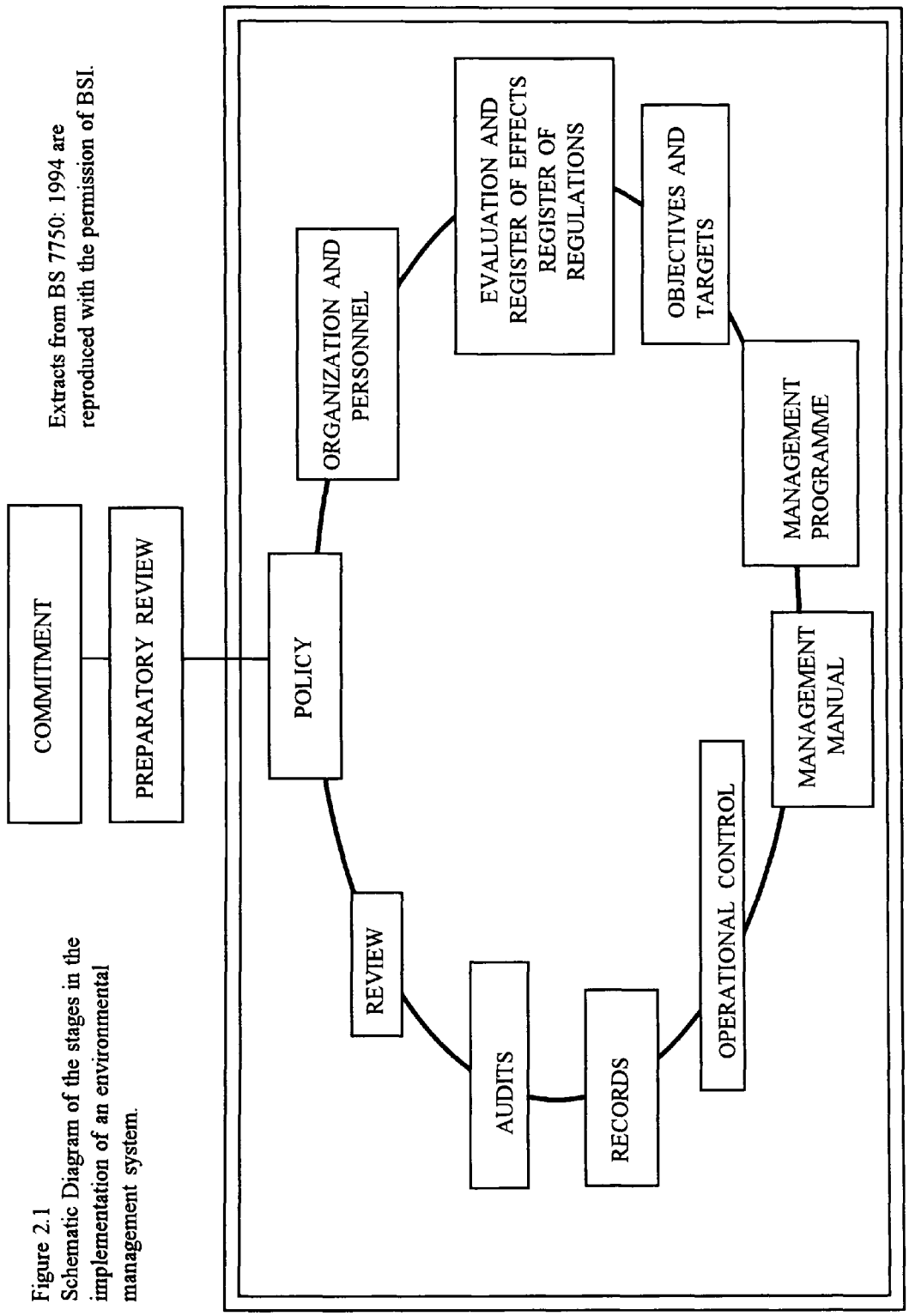
The following outline the stages in the 1994 version of the standard, which had been updated following rigorous pilot programmes.

2:2.1 COMMITMENT

Since the system's implementation will take up company time and resources, the organisation must, from the outset, have a genuine commitment to improving its environmental performance. By adopting the standard, the organisation will have to accept the changes which this implies and support for such change is, therefore, required at board level.

2:2.2 PREPARATORY REVIEW

The preparatory review, although not formally part of the BS 7750 specification, is a very important step in developing an EMS. Where no EMS exists it is necessary to establish environmental base-line information. The more comprehensive this initial



Extracts from BS 7750: 1994 are reproduced with the permission of BSI.

Figure 2.1
Schematic Diagram of the stages in the implementation of an environmental management system.

review, the more effective will be the subsequent audit and review cycles. The review should cover four key areas:

- legislative and regulatory requirements;
- evaluation and registration of significant environmental effects;
- examination of all existing environmental management practices;
- assessment of feedback from previous incidents.

A combination of checklists, interviews and questionnaires are recommended to highlight any environmental deficiencies.

2:2.3 ENVIRONMENTAL POLICY

The development of an environmental policy is fundamental to achieving the standard. The policy must satisfy a number of requirements, it must:

- be relevant to the organisation's activities;
- be publicly available;
- include a commitment to continuous improvement in environmental performance;
- provide for the publication of environmental objectives.

It has been argued that the corporate environmental policy statement is the key to instilling confidence in the stakeholders of businesses (for example, shareholders, bankers, insurers, employees, occupiers, planning authorities and local communities) that the company has a responsible attitude towards the environment (Foster, 1992).

2:2.4 ORGANISATION AND PERSONNEL

The organisation shall define and document the responsibility, authority and interrelations of key personnel who manage, perform and verify work affecting the environment. The standard requires the nomination of a management representative

with the authority and responsibility for insuring the standard is implemented and that staff, at all levels, are made aware of their roles and responsibilities and receive appropriate training. Other organisational responsibilities include identifying and recording problems, recommending solutions and verifying implementation of solutions.

2:2.5 ENVIRONMENTAL EFFECTS EVALUATION AND REGISTER

The organisation shall evaluate, assess and register any significant environmental effects, whether they are direct or indirect. The impacts which need to be registered include the following:

- controlled and uncontrolled emissions;
- controlled and uncontrolled discharges;
- solid and other wastes;
- land contamination;
- use of land, resources and energy.

The evaluation of indirect effects should include all those effects which the organisation can control, and this will include the environmental probity of suppliers. The organisation shall establish and maintain procedures to record all legislative, regulatory and other policy requirements, the register should serve to demonstrate that the organisation is aware of its legal and regulatory obligations relating to environmental protection.

2:2.6 ENVIRONMENTAL OBJECTIVES AND TARGETS

Once environmental effects have been registered, assessed and evaluated, the organisation shall set quantifiable environmental targets and objectives. The objectives should include a commitment to continual year-on-year improvement in overall environmental performance, but not necessarily in all areas of activity or at all

times. The areas targeted for improvement should include those where improvements are most necessary to reduce risks and liabilities. These objectives and targets are also required to be made publicly available.

2:2.7 ENVIRONMENTAL MANAGEMENT PROGRAMME

Adhering to an environmental programme is the key to compliance with the organisation's environmental policy, objectives and targets. The implementation of the programme will be accompanied by a clear and unequivocal commitment from all relevant personnel, it will detail how targets are to be achieved and who are to be responsible for achieving them.

2:2.8 ENVIRONMENTAL MANAGEMENT MANUAL AND DOCUMENTATION

The purpose of this requirement of BS 7750 is to ensure that there is adequate documentation to support the EMS in operation. The environmental management documentation provides an adequate description of the EMS, whilst the manual serves as a permanent reference to the implementation and maintenance of that system. The documentation provides the foundation on which the EMS audit assesses compliance, and, therefore, has to be designed to meet all the requirements of the EMS. The aim is to create a system of controlled documentation which is necessary to ensure the effective operation of the practices and procedures carried out by the organisation's management and staff.

2:2.9 OPERATIONAL CONTROL

Appropriate control and verification procedures should cover all functions, activities and processes that have a significant effect (direct or indirect) on the environment. The purpose of this control is to ensure that the environmental policy, objectives,

targets and programme are put into practice on a day-to-day basis throughout the organisation.

2:2.10 ENVIRONMENTAL MANAGEMENT RECORDS

This requires the organisation to establish and maintain a system of records to demonstrate compliance with the EMS requirements and to record the extent to which objectives and targets have been achieved. The records should include:

- details of any failure to comply with policy;
- details of any incidents, complaints and follow up actions taken;
- details of supplier and contractor information;
- inspection reports;
- monitoring data;
- environmental training records.

2:2.11 ENVIRONMENTAL MANAGEMENT AUDITS

This requires the organisation to establish a regular and systematic evaluation of the environmental management system and the related environmental performance to ensure compliance with BS 7750. It is important to determine:

- whether the environmental management activities conform to the manual, programme and procedures; and
- whether the effectiveness of the system is fulfilling the organisation's environmental policy.

The environmental audit can be undertaken by internal or external personnel, but in either case the persons conducting the audit should be appropriately qualified. The standard recommends that organisations should normally undergo an audit at least

every three years, particularly if seeking to comply with the Eco-Management and Audit Regulation.

2:2.12 ENVIRONMENTAL MANAGEMENT REVIEWS

The organisation shall, at appropriate intervals, review the entire EMS to ensure its continuing suitability and effectiveness. The review should address:

- the continuing suitability of the environmental policy. This could require updating due to potential regulatory developments or market pressure; and
- the continuing suitability of the environmental objectives and targets, and any revisions to the environmental management manual and other documentation.

The standard was subject to an 18 month pilot implementation programme involving nearly 500 participants, including some 230 implementing organisations. The revised standard, published in 1994, had three minor amendments from the draft standard which has now been withdrawn. The new standard confirms that there must be continuous environmental improvement by the participants but provides a definition which includes 'year-on-year improvement'. The pilot study indicated that companies could have gone on indefinitely identifying environmental effects. The revised standard eases this burden by requiring the identification of 'significant' direct and indirect environmental effects. Sector application guides are intended to indicate to each sector what constitutes a significant environmental effect (ENDS Report, 1994a). The new BS 7750 provides that companies should assess the environmental effects of suppliers if the organisation could reasonably be expected to have influence over them.

2:3 THE EUROPEAN ECO - MANAGEMENT AND AUDIT REGULATION

At the end of 1991 the European Commission approved a proposal for a Council Regulation to establish a European Community Eco-Audit Scheme, and by March 1992 it had been published in the Official Journal (Commission of the European Communities, 1992). The scheme was soon to be renamed the Eco-Management and Audit Scheme (EMAS) to reflect more closely its coverage of both environmental management and environmental auditing (Hillary, 1993b). It was subsequently published as Council Regulation (EEC) No. 1836/93 in June 1993.

As a regulation, it is automatically applicable to all Member States of the EU, and it requires them to set up and operate an eco-management and audit scheme. The adoption of a Community-wide EMAS satisfies the principles outlined in the EU's Fifth EAP "Towards Sustainability", which called for the integration of environmental and economic decision-making within industry in order to improve environmental performance (Gilbert, 1994).

In order to achieve this goal, the Regulation attempts to promote improvements in the environmental performance of industry by encouraging companies to :

- implement environmental protection schemes;
- establish and implement effective environmental management systems;
- carry out regular, systematic and objective audits of the environmental performance of such systems; and
- provide public information and verification information concerning their environmental performance to the public (Hillary, 1993c).

It is now accepted that at the centre of the EMAS is the development and maintenance of the EMS. Indeed, EMAS contains a specific requirement for participating companies to establish EMSs, and it contains many elements of the wording of BS 7750 itself.

"The two initiatives are therefore complementary, not conflicting" (Hunt and Johnson, 1993: 41, see also Gilbert, 1994: 10 and Jack, 1993).

Table 2:1 below clearly highlights that a company with full certification to BS 7750 will satisfy nearly all the requirements of EMAS.

Requirement	BS 7750	BS 7750 with Certification	Eco - Management and Audit Scheme
Policy	✔	✔	✔
Initial Review	✖	✖	✔
Programme	✔	✔	✔
EMS	✔	✔	✔ (to be applicable to all activities)
Audits	✔	✔	✔
Objectives	✔	✔	✔
Environmental Statement	✖	✖	✔
Independent 'certification' or 'verification' of various system components	✖	✔	✔
Publication of Statement	✖	✖	✔
Source: Hunt and Johnson, 1993			

Table 2.1: Comparison of the major requirements of BS 7750 and the EC Eco-Management and Audit Scheme

The initial review, although not a formal part of 7750 certification, will nonetheless be carried out by participants who will require it to set objectives and formulate policy. The other main difference is in the publication of an independently verified Environmental Statement which is required under EMAS, but not under the British Standard. This issue is discussed more fully in section 2:6.

2:4 ACCREDITATION AND CERTIFICATION UNDER THE TWO SCHEMES

Article 7 of the Eco-Management and Audit Regulation requires each Member State of the European Union to develop an accreditation system which will provide for the accrediting of organisations capable of verifying compliance with the Regulation. The regulation also provides that participants who use recognised national standards to meet the environmental management requirements of the scheme must have their compliance with those standards verified by a body whose accreditation is recognised in the Member State where their site is located. In 1993 the Government issued a consultation paper outlining its proposals for such a scheme, which included extending the system to accredit organisations wishing to certify compliance with BS 7750 (Department of Trade and Industry, 1993).

In the UK, the National Accreditation Council for Certification Bodies (NACCB) was selected by the Government as the body responsible for the accreditation of both certifiers for BS 7750 and verifiers for EMAS (ENDS Report, 1995a). The process of accreditation has been the subject of much debate, with concern that " ... certification would be worthless without official accreditation of certifiers by a recognised independent body" (Shayler *et al*, 1994: 29). Doubts have also been raised about the level of environmental experience of the NACCB, and therefore, its capability to accredit bodies capable of certifying companies against BS 7750 and/or act as verifiers under EMAS (*ibid*, see also ENDS Report, 1994b). However, the NACCB has addressed this concern by promising "root and branch" changes to the structures of its Council to reflect its new responsibilities rather than drafting in one or two environmental experts (ENDS Report, 1993).

The establishment of the Environmental Auditors Registration Association (EARA) by the Institute for Environmental Assessment (IEA) will also do much to allay fears over the certification and accreditation process of both EMAS and BS 7750. The IEA was established in 1991 with the initial remit of improving the quality of environmental impact assessments. However, it has since expanded its role to encompass

environmental auditing, and introduced EARA in an effort to secure quality control within the environmental auditing profession (Spedding, *et al*, 1993). Those practitioners wishing to register with the association will have to demonstrate that they are capable of undertaking environmental audits to very high standards. This will allow them to register under one of three headings: Associate Environmental Auditor, Environmental Auditor and Principal Environmental Auditor, depending on their skills, qualifications and experience. Those who are registered under the scheme are required to sign a code of practice and undertake continuing professional development. With its membership already exceeding 1000, which is expected to rise to 3500 by 1997 (IEA, 1994) the scheme can be regarded as very successful (Brandon, 1993). The NACCB have already indicated that they will be taking account of the EARA qualifications before deciding to accredit organisations with certification and verification powers (ENDS Report, 1993).

2:5 ISO 14000

A recent development in the field of environmental management has been the draft standard issued by the International Standards Organisation (ISO) ISO 14000. It has been argued that there are considerable differences between the two European initiatives and ISO 14000, with the international standard being regarded as the easier option, offering a much weaker set of directions than either BS 7750 or EMAS (ENDS Report, 1995b). The prescriptive nature of the two European initiatives, and the comprehensive documentation which both systems require, were not appreciated by the US contingent of ISO, who feared that such systems could open up avenues of litigation.

However, other commentators have argued that ISO 14000 is not fundamentally different to BS 7750 and EMAS, and that they all contain the same fundamental key elements (Birnbaum, 1995). O'Laoire and Welford (1995) support this view, and suggest that because ISO 14000 is less prescriptive than the other two standards, it lends itself to the SME sector.

Although the ISO standard is still in draft form, and therefore, theoretically open to modification, CEN, the European standards body, has come under pressure to adopt the standard in order to avoid a proliferation of international standards and create a barrier to trade. This could have major repercussions for the European initiatives which may ultimately be replaced by the international standard (ENDS Report, 1995b). Such developments in the field of environmental management are in the future and are not capable of being analysed within this thesis. Furthermore, if the commentators above are correct, the replacement of BS 7750 with ISO 14000 will demand that those organisations who choose to participate in the scheme will need to adopt policies very similar to those required under the British standard.

2:6 CRITICISMS OF BS 7750

Table 2:1 above has indicated that the two European schemes are very similar. This is not surprising when it is considered that the final draft of the BS 7750 standard was produced with the express intention that its requirements should be compatible with those of the environmental management system specified within EMAS (British Standard Institution, 1994: 2).

There is, however, a fundamental difference between the two initiatives, which has been the main cause of criticism levelled against the British initiative. The requirement within the European scheme, that participating organisations prepare and publish audit results of environmental performance, is not replicated within BS 7750. These audit results will be in the form of an independently verified Environmental Statement. Although there is no such requirement under BS 7750, it should be noted that the standard does require the organisation's environmental policy and objectives to be made publicly available. A certified BS 7750 company will have developed a comprehensive EMS which should be capable of delivering these intended goals. Consequently, any third party can assess a certified company's environmental performance by examining the environmental policy and objectives.

It is particularly important, therefore, that the professional integrity of those involved in the certification process of BS 7750 is beyond reproach. These professionals will have the task of assessing whether a company's EMS is capable of delivering the aims of their publicly-available environmental policy and objectives. Provided the certification process works properly, third parties can, therefore, be satisfied that companies deemed to be complying with the standard are achieving the environmental improvements indicated by their environmental policy, objectives and targets. (As Chapter Six will demonstrate, the results of the interviews with property investors, particularly banks, showed that in order for them to take account of an EMS it would have to be externally and independently verified by recognised environmental auditors).

2.7 EMSs AND PROPERTY INVESTMENT

It is difficult to argue that EMSs have not already had an impact on many business and industrial sectors. There are a number of reasons for this. The environmental pressures outlined in the first Chapter of this thesis continue to have an impact on business attitudes. Commercial organisations will search for appropriate responses to business pressures, as and when they consider the pressures to be significant. Evidence suggests that companies consider one-off environmental reviews are no longer adequate to deal with the pressing environmental issues which they now face, and that increasingly they are looking towards environmental management.

It was against this background that the International Chamber of Commerce introduced, and recommended to its members, a very proactive definition of environmental auditing. The Confederation of British Industry also invited the BSI to develop an EMS standard for the benefit of its members, and British business has been very closely involved in the development of that standard.

This augers well for the take up of EMS standards in general, and BS 7750 in particular. The intense interest generated by the standard (the number of copies purchased of the draft BS 7750 was the largest response BSI had ever had to one of its draft standards (Environment Information Bulletin, 1991)), the widespread acceptance

of its underlying principles, the continuing growth of environmental pressures, the introduction of the Eco-Management and Audit Scheme, and the growth of certification requirements along supply chains all suggest that take up of the system will be very rapid (Hunt and Johnson, 1993). The BSI estimates that up to 20 per cent of the 25,000 companies that are certified to BS 5750 will move towards BS 7750 in the next two to three years (Cottam, 1994). This development will be facilitated by the fact that organisations certified to BS 5750 will have a clear advantage in developing BS 7750 (Houldin, 1992, and Powley, 1993, and Welford, 1992).

It seems likely that in the future, improvements in environmental performance made by organisations will be achieved through the implementation of an EMS. Such systems could be uncertified or, more likely, could operate under one of the formal standards which have been discussed in this Chapter. Some of the major benefits a tenant can receive from developing such a system have already been hinted at, and will be discussed more fully in Chapter Seven. However, it is appropriate at this stage to outline why the implementation of an EMS by a tenant, (particularly a system which is registered under BS 7750 or EMAS) can provide the landlord with three major benefits.

- Firstly, where potentially polluting processes are carried out on site, there will be less risk of legislation being transgressed and environmental damage occurring. This in turn will reduce the prospect of the tenant incurring environmental-related losses due to criminal and/or civil prosecution, providing the landlord with an income stream devoid of this element of environmental risk. The prospect of landlords becoming directly liable for environmental damage caused by tenants will also be significantly lower.

- Secondly, where tenants are involved in substantial industrial undertakings in another part of their organisation, the prospect of environmental damage occurring will be significantly reduced. This can also protect the landlord's income from environmental risk.

- Thirdly, a competitive advantage will be obtained by those companies that respond to the increasing pressures being placed upon them to improve their environmental

performance. By satisfying stakeholders, for example, banks, insurers, customers (both corporate and public), employees and government agencies, tenants have the opportunity to offer landlords an enhanced income stream compared to environmental laggards.

2:8 SUMMARY

This Chapter has provided a comprehensive introduction to EMSs. It has outlined their historical development and compared the two major European standards with one another. It has also outlined the potential benefits which investors can receive where their properties are occupied by tenants certified to a standard such as BS 7750. These benefits are expanded upon throughout this thesis, and particularly in Chapter Seven.

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CHAPTER THREE

3:0 PROPERTY INVESTMENT RISK

In order to determine whether the environmental performance of an occupying tenant will impact upon investment returns, this Chapter provides a review of literature on property investment risk. Such a review allows the subject of study to be examined in the context of property investment risk in general, and places the environmental performance of a tenant under well-defined and accepted definitions of property investment risk. It is also acknowledged that since property investment portfolios are difficult to diversify, the environmental performance of a tenant, being an unsystematic risk, assumes even greater importance. Therefore, due to property's inherent characteristics, the chance that the environmental performance of tenants will impact upon the investment performance of the wider portfolio is compounded. The potential enhancement of income security delivered by a tenant adopting recognised environmental standards, is also considered in the context of property investment risk.

3.1 THE HISTORY OF PROPERTY INVESTMENT RISK

The field of property investment risk has been described as " ... a much under-considered and under-researched problem" (Baum, 1987: 228). Compared to the large amount of research undertaken in relation to other investment media, particularly in the US, property appears to be the poor relation. Modern Portfolio Theory (MPT), for example, provides the basis for much of the current practice of fund management in the securities markets. This theory developed from the seminal works of Markowitz (1959) and Sharpe (1964) which was undertaken in relation to the US equity market. In 1977 Young argued that real estate literature trailed the general finance literature by 25 years, and that the treatment of risky investments in a property context was almost non-existent (Young, 1977). Morley (1988) has since

argued that UK property literature is probably 10 years behind US real estate literature.

Waldy (1990) provides two reasons for the lack of research carried out in relation to property investment risk, and argues that improvements are being made. Firstly, the traditional view that property investment is a secure, non-risky investment has been questioned by property market slumps. Secondly, since property has to compete with other asset classes for the attention of investing institutions, pressure has been placed upon those responsible for property investment to provide accurate performance measures. The improvements in the availability of property market data, although still a long way behind the other markets, has facilitated this process. The last ten years has seen a marked increase in the literature relating to this field of study.

3.2 SOME DEFINITIONS

Reilly (1985) suggests that risk is uncertainty regarding the expected rate of return from an investment. Baum and Crosby (1995) also use this definition in their Property Investment Appraisal work. Hargitay and Yu (1993: 35) suggest that risk should be regarded " ... as the description of the extent to which the *actual outcome* of an action or decision may diverge from the *expected outcome*". Other analytical definitions of investment risk exist. Some argue that risk is seen by investors as being the chance of default. This implies that investors are not worried with long term variability in returns, rather they are concerned with the chance that the investment will fail to provide a return (Waldy, 1989). Others view property investment risk in the context of Modern Portfolio Theory. This splits risk into two parts, one is specific to the investment, and the other relates to the risk of the market as a whole. Property investment risk has also been described as the chance that returns will fail to meet the investor's liabilities (Baum, 1987).

This thesis is not concerned with identifying which definition of property investment risk is most appropriate. They all serve a purpose, and it is understandable that different investors will be interested in different aspects of investment risk due to

their inherent investment characteristics. For example, general insurance companies are likely to be very concerned with the 'liquidity risk' associated with a property investment. This is due to the nature of their liabilities, which tend to be erratic - based on accident and motor insurance claims. It is important that such companies can realise assets quite quickly as and when pay-outs are required, and the length of time involved in property transactions does not satisfy these requirements. Indeed the Investment Property Forum has recently concluded that funds would be more inclined to invest in property if the asset class was more liquid (Bourne, 1995).

Others may argue that it is important to consider whether money risk or real risk is being considered. Money risk is the possibility of money returns being different from those expected. The money risk of a fixed interest gilt, if held to redemption, will be negligible - the only risk that money returns will differ from those expected is that the Government will default in the repayment of its debt. Real risk is the possibility of real income and real capital value differing from that which is expected. The prospect of variations in the real value of the fixed interest gilt may be high due to the probability of changes occurring to the real value of money. See Baum and Crosby (1995) for an account of this aspect of investment risk.

However, the most widely used definition of property investment risk is the variability of annual returns, as measured by standard deviation (Fraser, 1985). The underlying aim of this thesis is to present evidence that the environmental performance of an occupying tenant has the potential to influence the level and variability of returns offered by a property investment. It also argues that the implementation of an EMS by a tenant, will minimise the potential for this risk to materialise.

3:3 THE VARIOUS SOURCES

Baum and Crosby (1995) provide a comprehensive list of property investment risks. *Tenant risk* is defined as " ... the chance that the tenant will affect returns by his actions" (*ibid*: 32). There will be concern that the tenant could vacate the premises

and pay no rent, or that repairing obligations will not be carried out. *Sector risk* is the chance that price movements between the various sectors of property will affect the subject investment. This can occur at two levels. Performance can differ between different types of property investment such as offices, shops or industrial property. Secondly, the location of the offices, shops and industrial property can exaggerate or reduce the difference in performance. *Structural risk* is the chance that high repair and maintenance costs will be incurred. It also relates to the prospect of redevelopment becoming necessary due to functional or economic obsolescence of the building. *Legislation risk* is the prospect that legal changes, whether in statute or case law, will affect investment returns. The Leasehold Reform Act 1967 is an example of legal changes having a direct impact upon residential property investments. Alternatively, the 'Brown Ban' on new office development can be regarded as *legislation risk* which impacted upon the performance of office investments. The 'Ban', which was rigorously applied to the City of London from 1964 to 1968, had the effect of increasing office rental values in the area. Conversely, the relaxation of many of these controls in 1970 was a major factor contributing to the dramatic fall in office rents in London between 1974 - 76 (Fraser, 1984). *Taxation risk* describes the chance that new taxes, or alterations of existing taxes, will have an impact on investment performance. Property has been influenced by tax changes in the past such as Uniform Business Rates and Development Land Taxes, the latter having the effect of reducing the supply of land available for development causing an increase in prices (Fraser, 1984). *Planning risk* is the prospect of planning policies, whether introduced at central or local government level, impacting upon property investment returns. Restrictions on the further development of out-of-town shopping centres, for example, bode well for the investment performance of existing centres. *Legal risk* will include the chance that a mistake is made during the legal conveyancing of a property title. Additionally it is concerned with the risk that a rent review notice could be missed and potential increases in rental income foregone.

An alternative to the risk categories used above, which relate specifically to property, is introduced by finance theory. Here three broad categories of risk are said to exist when making investment decisions in general. These can be summarised as follows:

Business risk, which is related to the risk associated with a company's business operations (Hargitay and Yu, 1993). Various factors influence this level of risk, including the size of the company, the strength of competition and the competence of the management team in charge. *Financial risk* is dependent on the level of debt finance used by the company. The larger this amount, the larger the financial risk. *Liquidity risk* relates to the degree of difficulty involved in realising the capital invested. It is concerned with the divisibility and marketability of an asset, and the length of time involved in converting the asset into cash. Baum and Crosby (1995) have summarised these categories of risk in the context of property investment, and have concluded that they are of limited use in explaining property risks.

3:4 THE ENVIRONMENT AND PROPERTY INVESTMENT RISK

Having reviewed the various sources of property investment risk, it is useful to place environmental issues within the relevant categories of risk. 'Environmental risk' has been defined as the chance that environmental developments, whether in the legal, political, social or economic context, will impact upon the return offered by a property investment (Turner *et al*, 1994a).

The development of environmental legislation, and any other measures which the United Kingdom or European Union pursue to limit environmental damage, could come under the *legislation risk* which was discussed above. Just as the Leasehold Reform Act altered the investment worth of residential property in the late 1960s and early 1970s, the Environmental Protection Act, and the powers it provides to Local Authorities to serve remediation notices to clean-up contaminated land, will inevitably impact upon the investment worth of those industrial and commercial properties affected.

The Government has made significant changes to the advice it provides to Local Planning Authorities (LPAs) concerning out-of-town shopping. Planning Policy Guidance Note 13 (PPG13) encourages LPAs to focus development of traffic-intensive uses, such as retail, to areas very close to major public transport facilities.

This has been described as " ... sounding the death knell for future out-of-town development ... " (Barnett, 1994). The future expected restrictions on out-of-town retail development, clearly a very popular form of shopping with the British public, augers well for the rental and capital growth, of those existing centres. The reason for these changing policies has been attributed to the decline in traditional High Street shopping centres, and the commitments which the UK Government made to the goal of sustainable development at the Earth Summit in Rio and the EU's environmental objectives (MacRae, 1994). Such property investment risk could be classed a *planning risk* which has been initiated by environmental pressure.

The change in planning policy has been accompanied by a change in transport policy also. In its National Strategy for Sustainable Development, the Government has provided clear signals that it is moving away from its long-standing encouragement of the use of the private motor car, towards introducing greater charges for road users and greater emphasis on public transport (Department of the Environment, 1994). An authoritative and influential report from the Royal Commission on Environmental Pollution (1994) has attacked the road building programme at its base, and has called for a doubling of petrol prices over the next ten years. It seems likely that industry will have to cope with significantly higher road transport costs in the future. This could result in higher demand for distribution centres, and perhaps other types of property, which are capable of taking advantage of emerging rail networks. These developments may also be classed as *planning risk*, since they will materialise through the planning process.

It may also be appropriate to class the "environment" under sector risk. Although not exclusive to industrial property, environmental risks are more usually associated with this land use class. Where a property is purchased on an industrial estate, which has been zoned for industrial use for decades, it is likely that environmental problems will exist. Sector risk, by its very nature, is capable of being diversified away or, more accurately in this context, avoided by allocating funds to those properties which are far less likely to carry environmental risk.

3:5 TENANT ENVIRONMENTAL PERFORMANCE

This research concentrates on whether a tenant's poor environmental management practices could result in a property investment producing actual returns which diverge from those expected. It is, therefore, the tenant's management of the environmental issues which assumes importance. It is argued that this is more appropriately dealt with under the heading of tenant risk, rather than planning or legislation risk. Indeed, Baum and Crosby's definition of tenant risk, " ... the chance that the tenant will affect returns by his actions" (Baum and Crosby, 1995: 32) seems particularly apt. (See section 3:7 for a more detailed examination of tenant and environmental risk).

3:6 PORTFOLIO AND SINGLE ASSET RISK

It has been recognised for some time that property investment risk carried by a portfolio of properties can be reduced by spreading the amount of funds available into a variety of opportunities. For example, allocating 50 per cent of available funds to purchase shops in East Anglia, and 50 per cent to purchase industrial property in the North West, will provide an investor with a crude form of portfolio diversification. It will reduce the risk associated with the volatility of investment returns of either of the two single markets (Sweeney, 1989). (The extent to which shops in East Anglia or industrial property in the North West, can be regarded as independent markets is, of course, limited). However, by recognising that the property investment returns of different types of property, situated in different geographical locations, are likely to react differently to national economic trends, or local or site specific trends, property investors are said to have been able to reduce risk in their portfolios (Brown, 1988).

Such diversification of investment portfolios has been undertaken in the ordinary share market for decades. Up until the 1950s, however, this diversification was based on the subjective assessment of the risks involved. At this time Markowitz (1959)

developed a technique, providing investors with the opportunity to construct portfolios which would allow for the efficient diversification of funds, producing the minimum risk levels for a desired rate of return. The technique is referred to as the mean-variance optimisation technique, where the 'mean' is the measure of the expected return and the 'variance' (or its positive square root, the standard deviation) is the risk measure. This allows investors to construct portfolios where risk is minimised by combining assets whose returns demonstrate less than perfect positive correlation (Baum and Crosby, 1995).

The main plank of this theory, referred to as Modern Portfolio Theory (MPT), is the identification of risk as volatility of return and the division of such risk into specific-risk (also referred to unsystematic risk) and market-risk (also referred to as systematic risk) (Waldy, 1990). Unsystematic risk refers to that part of investment return, volatility or risk, arising from individual circumstances affecting the asset. Systematic risk refers to that part of investment return, volatility or risk, which results from investing in that particular market.

In relation to property as an asset class, unsystematic risk is associated with an individual property's characteristics such as

> " ... location, regional and local economic conditions affecting demand for the property and the competitive supply of similar properties, its physical design and construction, the tenant's roster and ... credit worthiness, the structure of tenant leases and the level of property management together with planning and zoning controls" (Sweeney, 1989: 20).

Systematic risks in a property context, relate to factors which affect all investments in the property market (although not equally) and are, therefore, not specifically related to any one property. Examples include, macro-economic policies - such as fiscal and monetary policy - inflation levels, interest rate levels, unemployment levels and demographic trends. More specifically it could include a new tax on property investment returns.

The distinction between systematic and unsystematic risk is not academic, and is very important to MPT. The theory asserts that the specific-risk of a share, which is the volatility that arises from individual circumstances, can be removed in a portfolio by diversification. In contrast, market-risk, which represents the volatility which results from investing in that particular market, cannot be diversified away. In a completely diversified portfolio, therefore, it is the risk of the market which will determine the level of risk (Baum and Crosby, 1995). A theoretical application of MPT to property would mean that individual property risk factors (unsystematic risks) could be cancelled out by carefully and diligently selecting individual properties (Sweeney, 1989).

If it was possible to diversify property portfolios down to market-risk levels, i.e. where unsystematic risks are cancelled out by purchasing a range of different property types in different locations, the impact of unsystematic risks upon the investment performance of the whole portfolio would be zero. Investors would, therefore, have less need to worry about the site-specific factors of property investment such as lease details, local economic conditions and tenant risk. Since the environmental performance of a tenant is a specific-risk, this too would be unimportant because its effects could be cancelled out as more properties were added to the portfolio. (Although it will be shown that this, in fact, is not the case).

3:6.1 THE IMPORTANCE OF UNSYSTEMATIC RISKS

Various commentators have outlined the limitations of MPT in explaining the allocation to property in a multi-asset portfolio (Baum, 1989, MacGregor and Nanthakumaran, 1992 and MacGregor, 1993). One of the reservations often cited in relation to the limitations of MPT to the property market, is the inadequacies of historical data, which is then used as a proxy for future performance upon which allocations to property are based. One of the problems with the data, say the critics, is that the indices are not devoid of specific-risk. In order to have a representative measure of the market, it is necessary that specific-risks are eliminated from the

indices, and this does not occur due to the fact that they are constructed from poorly defined heterogeneous populations (Baum, 1989). Even if such a specific-risk free index was possible to construct, it is unlikely that any investor's property portfolio would be large enough to mimic such an index. In summarising one of the main criticisms of MPT in its application to property, Baum (1989: 6) therefore argues that

> "On balance, it seems indexes carry some specific-risk and are consequently riskier than the underlying population: but the great majority of investors, and arguably those that dominate the market, carry even more specific-risk than the indexes".

Brown (1988) has argued that the performance of individual properties are affected to a large degree by the unsystematic components of risk. These specific-risk factors tend to produce low correlation coefficients between properties which are helpful in reducing risk. Brown goes on to acknowledge that the " ... correlation structure does, however, impose a penalty making it extremely difficult to construct highly diversified portfolios" (*ibid*, 127). Brown, therefore, acknowledges that because of the investment characteristics of property, for example, indivisibility, illiquidity and usually unequal weighting within a portfolio, the relative portfolio performance will be heavily influenced by factors specific to individual properties, as opposed to market wide factors. Waldy (1990) agrees, arguing that it is easier to create highly diversified portfolios within the stock market than it is within the property market.

Waldy (1989), in determining the perception of risk of institutional investors found that they " ... considered the specific-risk factors to be of greater importance to property risk than the market-risk factors". Additionally Whalley (1994) argues that portfolio structure is of greater significance for larger funds where there is more opportunity to diversify away individual property factors. Thus, stock selection is more critical for small funds.

Morrell (1993) also contends that stock selection has a dominant effect in determining the relative success of a fund, and that individual properties have been responsible for most of the variability of return occurring within portfolios. Morrell suggests that the

> " ... perceived benefits of diversifying risk by holding a large number of assets can be swamped by the existence of differential property weights. In short, a property portfolio may comprise a large number of assets, but an unequal distribution of lot sizes means that it may adopt many of the risk characteristics of a smaller portfolio of equally weighted assets" (*ibid*, 9).

This suggests that specific-risks should be a major consideration of property investors, particularly smaller property investors. They are important because of problems associated with portfolio diversification, and, quite simply, because few investors, if any, have the funds to diversify internationally, regionally, by city and by property type in order to diversify away the unsystematic risks of property (Baum and Crosby, 1995).

Due to the importance of unsystematic risk, Waldy (1991) suggests that it is necessary to consider risk on a property-by-property basis, and more for research to be undertaken in this area. Brown (1992) also encourages researchers and practitioners alike to concentrate on the unsystematic risks of property investment in order to reduce the risks of property portfolios.

"Property portfolios can easily be shown to be poorly diversified (Brown 1991). Even large portfolios do not have the level of diversification that is common in the equity field so that periodic investment performance is largely determined by specific rather than market wide factors. Thus in order to show better than average performance professional advisors need to be able to utilise information in new and interesting ways that will create added value to their clients' portfolios" (Brown, 1992: 242).

The requirement for this research to be undertaken is, therefore, twofold. The unsystematic components of property investment risk are relatively under-researched in comparison to portfolio risk, and their potential to impact upon performance of property portfolios has perhaps been underestimated in the past. Secondly, the environmental changes which have taken place in the last few years have the potential to impact upon the performance of property as an investment medium. This research concentrates on one particular aspect of environmental risk: that which is associated with a tenant's environmental performance.

3:7 TENANT AND INCOME SECURITY RISK

The environmental developments discussed in Chapter One, mean that the environmental performance of a tenant should be included as a source of property investment risk. Furthermore, this environmental performance can be considered a part of tenant risk. Indeed in the future it is expected that investors, when talking about the income security of an investment, will consider the possibilities of environmental related loss impacting upon this risk. At the present time however, the fact that such environmental risk exists is not particularly well recognised - although Chapter Six will show that some property investors acknowledge its existence.

3:7.1 TENANT RISK

One of the inherent risks in property investment is the financial failure, or the financial deterioration, of a tenant (McCausland and Palmer, 1994). Financial failure will result in a break in the income stream and a commensurate reduction in value of the investment. Financial deterioration of the tenant's covenant will also have a negative impact upon value, since potential purchasers will be less confident about the security of the future rental payments and this, provided the information is available to the market, will be reflected in the price paid.

Thorncroft (1965) has argued that tenant selection is the most important decision that a landlord takes. Morley (1988), Baum and Crosby (1995) and Waldy (1989) all agree that the income security of a property investment will be very dependent on the quality of the tenant's covenant. McIntosh and Sykes (1984: 34) conclude that " ... the type of tenant covenant can be critical to the investment value of a property".

The acceptance of tenant risk as an established source of property investment risk is testimony to the fact that investors have concerns about the way in which a company runs its business. The investor is, therefore, likely to examine the tenant's " ... track record ... prospects ...and management." (Hargitay and Yu, 1993). The extent to which this actually occurs in practice is likely to be very dependent on the size of the tenant under consideration and the economic climate prevailing at the time the investment decision is made. For example, research undertaken in relation to the Sydney Office Market in 1992 highlighted that security of income was second only to location as a determinant of the capitalisation rate, and that this was attributed to the severity of the economic downturn which prevailed at the time the study was undertaken (Parker, 1992). Patterson (1993: 88) has also shown that during the early 1990s " ... the proportion of property prices being paid for the income component of investments as opposed to the growth component is at an historically high level". Other commentators have concluded that because economic growth is likely to be significantly lower in the 1990s than in the 1970s or 1980s, an assessment of income security risk will be more important to property investors (McIntosh, 1993).

The importance of income security in relation to the risk carried by property investments, is not unimportant to this thesis. It is clear that environmental liabilities can generate either short or long term adverse impacts on a company's business performance, and in extreme cases will threaten the long term viability of a business. The problem that property investors face is that in many instances the environmental risks a tenant may encounter are not being made available to the markets. Although some companies have started to produce "environmental" reports with their end of year "financial" accounts, they remain a small minority. Furthermore, the lack of information which confronts property investors has been exacerbated by the financial markets' reluctance to focus fully on the value of environmental data in assessing

companies' prospects. (Advisory Committee on Business and the Environment, 1992). However, it is unlikely that this situation will continue for much longer.

The contention that a company's poor environmental performance could have an adverse impact upon its financial standing has only recently been propounded, and it is by no means universally accepted that investors should consider it. However, there has been a sea change in investors' attitudes towards environmental pressures, and how these can impact upon company prospects, over the last two years. This in turn has led to a research effort aimed at providing investors with a systematic way of measuring their exposure to environmental risk of this nature (Lascelles, 1993); i.e. the risk that a company's poor environmental performance can undermine the financial standing of the company and, therefore, impact upon investment returns.

As this thesis demonstrates, poor environmental management on the part of a tenant could lead to an asset's return being reduced, eradicated or even turned into a liability. It is, therefore, logical and defensible to contend that a tenant's environmental management practices have the potential to impact upon the level and variability of return offered by a property investment. The purpose of examining the "environmental performance" of a tenant, given the importance of unsystematic risk, is that overall risks inherent in the entire portfolio are reduced and performance enhanced (Turner *et al*, 1994a, Turner *et al*, 1994b and Turner *et al*, 1994c).

3:8 SUMMARY

Although this thesis has considered that the environmental performance of a tenant is more appropriately dealt with under the heading of tenant risk, it will be appreciated that environmental pressures emanate from many different sources. For example, legislation and planning risk are two examples of property investment risk which are not devoid of environmental risk.

It could be argued that the fact that environmental pressures are expected to increase still further, provides explanation enough for this research. However, two other

aspects compound this type of property investment risk, and make it more likely that it will have an effect on property investment returns.

Firstly, unsystematic risk factors are particularly important to the performance of a heterogeneous investment medium such as property. This has been underestimated in the past because of the perceived benefits of portfolio diversification. The environmental performance of a tenant, being an unsystematic risk, is a potential threat to the level and variability of property portfolio investment returns.

Secondly, evidence that the environmental performance of tenants can impact upon their economic performance continues to grow. The financial standing of a tenant, particularly in relation to high yielding industrial property, represents a component of investment risk. During periods of low economic growth and low tenant demand such risks are paramount. Since the environmental performance of tenants can impact upon their financial standing, it will affect the income security of property investments, and thereby potentially impact upon the variability of investment returns.

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CHAPTER FOUR

4:0 POTENTIALLY POLLUTING TENANTS AND LANDLORD LIABILITY FOR ENVIRONMENTAL DAMAGE

This Chapter seeks to demonstrate that institutional and property investment company portfolios are unlikely to be completely devoid of potentially polluting tenants. Where environmental damage does result from the current activities of tenants, there is a considerable body of opinion to suggest that landlords will become criminally liable for such damage. This Chapter examines relevant information sources and case law, and argues that property investors need to be aware of this element of investment risk.

Chapter Five provides details of the interviews held with various professionals involved in the this field of work. One of the groups interviewed comprised practising environmental lawyers. These interviews (see Volume II of this thesis) were particularly useful in providing the researcher with an understanding of how environmental legislation has been interpreted to include owners of property.

4:1 ENVIRONMENTAL RISK AND PROPERTY INVESTMENT

This chapter considers environmental risks associated with the current activities of certain tenants. It also demonstrates that the type of occupying tenants who are exposed to environmental risk are present within institutional and property investment company portfolios. It is shown that such risks are not exclusive to heavy industrial, owner-occupied property which fall within the special industrial groups of the Use Classes Order (UCO) 1987[1]. In support of this argument, potentially

[1] The research concentrated on the B1, B2 and B8 classes of the UCO 1987, and was undertaken prior to the Government's abolition of the Special Industrial Groups (B4 - B7) which now come under the General Industrial Class B2, The Town and Country Planning (Use Classes Amendment) Order 1995.

polluting processes are shown to exist within the B1, B2 and B8 classes of the UCO. The empirical work undertaken during this research (see Chapter Six) also supports the contention that B1, B2 and B8 property are occupied by tenants capable of causing environmental damage, and that concerns remain as to the potential landlord liability where these risks materialise.

Whilst examining environmental risk associated with occupying tenant activities, it is useful to distinguish between "direct environmental risk" and "indirect environmental risk". "Direct environmental risk" is concerned with the tenant's ability to cause a pollution/contamination incident on the landlord's property, and is a function of a number of site-specific factors, not least of which is the activities which the tenant carries out on site. "Indirect environmental risk" relates to the type of activities tenants carry on throughout their organisation, and is concerned with the scope for environment-incurred losses to undermine the financial standing of the tenant, or even to cause its financial failure. Indirect environmental risk is dealt with in a general manner throughout this thesis. However, Chapter Seven examines in some detail the prospect of indirect risk impacting upon property investment returns in the context of EMSs. This Chapter concentrates more specifically on direct environmental risk.

Since institutional and property investment company portfolios invariably contain an element of industrial property - although the weighting in industrial, and the weighting between different types of industrial property varies - such portfolios will be exposed, at least to some extent, to direct environmental risks. For example, at the end of 1994 industrial property represented 14 per cent, as a weighting of total value, of the Investment Property Databank annual index (IPD, 1994). This index represents approximately 75 per cent of the institutional property investment market. Whilst much of this 14 per cent will be made up of properties occupied by tenants carrying on activities which do not pose direct environmental risks, it is unlikely that the entire portfolio will be completely devoid of potentially polluting tenants. Moreover, certain property investment company portfolios have much higher allocations to B2 type industrial property and are, therefore, potentially subject to higher levels of direct environmental risk. However, as section 4.5 outlines, it is not the type of property in

ownership which necessarily determines the level of environmental risk, it is the tenant's use of the premises which is paramount.

The information sources and tools which have been developed to aid in the assessment of environmental risk, provide a helpful guide to understanding why property investors are exposed to such uncertainties. The pollution control section (section 4:5) provides a brief outline of the relevant regulations which are further discussed in Chapter Six.

4:2 IDENTIFYING ENVIRONMENTAL RISK

There are various ways in which property investors can identify whether they are subject to direct environmental risk.

4:2.1 PLANNING CONTROL SYSTEM

The land use planning system is, potentially, a useful tool in identifying environmental risks. Structure plans, local plans and unitary development plans all must have regard to the amenity of land and the improvement of the physical environment (Town and Country Planning Act, 1990), and environmental considerations should be taken into account in drawing up all development plan policies (Department of the Environment, 1992). Planning policy guidance notes also suggest that planning authorities need to identify land for potentially polluting processes, and that this land should be away from other land uses in order to reduce conflict (Department of the Environment, 1994).

The planning control process is nonetheless a broad brush approach to the identification of such risk. It concentrates very much on the heavily polluting processes, and ensures that these are located away from sensitive environmental media, or that appropriate planning agreements are entered into to guarantee that the operator introduces measures to minimise the risk of contamination or pollution. It does this by zoning areas of land, and allocating appropriate land use planning permissions to different areas. It is not, nor was it designed to be, a comprehensive environmental risk identification system,

since it concentrates on areas of land as opposed to individual properties. This zoning of land, into the various groups of the UCO, allows a wide range of activities to be carried out - in terms of their potential to cause harm to the environment - within one area. The UCO, therefore, is limited in its ability to identify environmental risk because the myriad of factors which influence whether a use is B1, B2 or B8, for example, do not necessarily indicate the potential for that use to cause environmental damage.

4:2.2 THE USE CLASSES ORDER

Tenants carrying out processes which can cause environmental damage and result in action by the relevant regulators in statute law, or third parties at civil law, do not necessarily occupy properties which were formerly included within groups B4 to B7 of the UCO: i.e. those uses typically described as heavy industrial. A brief review of the UCO highlights that potentially polluting processes can be carried on in 'lighter' industrial property.

For example, B1 uses can include the development and manufacture of computers, micro-engineering, biotechnology, pharmaceutical research and manufacture - provided always that such uses could be carried on without detriment to the amenities of a residential area by reason of noise, vibration and smell etc. (Telling, 1993). The use of solvents, chemicals, oil-based substances and the waste generated on site - both liquid and solid - by such activities have the potential to cause environmental damage. This, of course, was recognised by the proposed section 143 registers where some of these uses are listed as potentially contaminative (see section 4:3.1 and in particular Table 4:1). Other commentators have also arrived at this conclusion arguing that:

> " ... a class B1 business use permits the carrying on of industrial processes which could have significantly polluting effects" (Symes, 1994);

and that:

> "Contaminative uses are likely to cover not only the recognised processes of producing energy, chemicals, raw materials and waste disposal but also operations like the .... use of laboratories for educational or research purposes ... " (Pugh-Smith, 1992).

The *Foliejon* case (see section 4:4.5) clearly demonstrates that the activities of such premises can be very polluting.

It should also be recognised that there are a considerable number of prescriptive environmental legislative requirements relating to the heavier industrial operations. This acts to reduce the overall level of risk posed by these operations. In contrast there are generally fewer requirements imposed on operators falling under the traditional B1, B2 and B8 classes which could, and often does, lead to a lack of awareness (and hence increased risk) in relation to the hazards that such businesses encounter. Indeed the main argument provided by the Department of the Environment for streamlining the UCO by incorporating the special industrial groups (SIGs) within the B2 class, was that " ... modern health, safety and environmental controls are adequate to regulate these [SIG] processes" (South, 1995). This was also highlighted in the interviews with environmental auditors (see Chapter Six), where a low level of environmental awareness within a tenant's organisation often led auditors to conclude that environmental risk was higher.

4:3 INFORMATION ON CONTAMINATED LAND

There have been various publications which provide a good indication of the types of uses which can cause contamination and pollution problems.

4:3.1 REGISTERS OF CONTAMINATED LAND

Under Section 143 of the Environmental Protection Act (EPA) 1990, Local Authorities were required to compile registers of land within their areas which may be contaminated (Environmental Protection Act 1990). This section was not implemented, and was repealed when the Environment Bill became the Environment Act 1995 in July this year (1995). Nevertheless, the original register proposals indicate the types of uses which may cause contamination and pollution problems. The original list contained sixteen groups of uses which have the potential to cause contamination of land. (This list of uses, far from being defunct, is often used by financial institutions and lawyers during enquiries in property transactions (Tromans and Turrall-Clarke, 1994).

There are certain groups of uses which appear on the original list which may also be carried out within the B1, B2 and B8 classes of the UCO. Table 4:1 examines the section 143 registers in the context of the UCO. Those rows highlighted represent uses which are included both within the B1, B2 and B8 uses of the UCO and the repealed section 143 registers. It should be noted once again that due to the streamlining of the industrial parts of the UCO, the SIGs have been abolished and there is no requirement to highlight them separately. However, it is helpful to consider them in this manner since they represent uses not commonly found within property investment portfolios.

With regard to Table 4:1 it is necessary to bear in mind two important points. Firstly, the list is not exhaustive - there are other uses and activities which can cause pollution. And, secondly, it should also be remembered that what is not considered pollution or contamination today may be considered so in the future. For example, the Environmental Protection Act now regulates many land uses which had previously been considered to be non-polluting.

It should be apparent, therefore, that the "planning control system", and the UCO can only be used as a general guide to assess direct environmental risk. The most they can

Table 4:1
Use Classes Order and Potentially Contaminative Uses

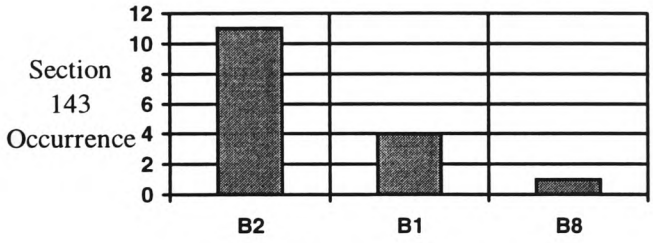
Type of Use	The Use Classes Order	Schedule of Contaminative Uses (from Annex C of the EPA 1990)
N/A	The use of land for agricultural purposes is not considered to be development.	C1. Agriculture
Special Industrial Group	These uses are not material to the property investment market; they include, for example, coal mining and extracting ores.	C2. Extractive Industry
Special Industrial Group	These uses are not material to the property investment market; they include, for example, Gasworks, Coal carbonisation plants and Oil refineries.	C3. Energy Industry
B4 & B2 (Miscellaneous High Street Trades)	**Although this group of potentially contaminative uses will principally be associated with Special Industrial Group B4, the manufacturing and metal finishing processes can also be carried on within the B2 use.**	**C4. Production of Metals**
B2 & B5	**The production or refining of non - metals and mineral fibres are uses which fall into the B2 use.**	**C5. Production of Non - Metals and their products**
B2	**The manufacture of glass and ceramics fall within the B2 use.**	**C6. Glass Making and Ceramics**
B5	**Although this group of potentially contaminative uses will principally be associated with Special Industrial Group B5, some pesticide and fertiliser manufacturing could be carried on within the B2 use.**	**C7. Production and Use of Chemicals**
B2 & B1 (Miscellaneous High Street Trades)	**The manufacture of metal goods including mechanical, engineering and industrial plant, can be carried on within the B2 use. The manufacture or repair of electrical and electronic components can certainly be carried on within the B1 use.**	**C8. Engineering and Manufacturing Processes**
B2 &B7	**The manufacture of pet foods or animal feedstuffs could be carried on within the B2 use.**	**C9. Food Processing Industry**
B2 & B1 (Miscellaneous High Street Trades	**The making of paper or paper products, including printing or de - inking are B2 uses. If the process was very localised then it could also fall within use B1.**	**C10. Paper, Pulp and Printing Industry**

Table 4.1 Continued		
B2 (Miscellaneous High Street Trades)	**The chemical treatment and coating of timber products can be carried on within the B2 use.**	**C11. Timber and Timber Products Industry**
B2 & B1 (Miscellaneous High Street Trades)	**The tanning, dressing and other processes for preparing leather are typically B2 uses. The fulling, dyeing or finishing of fabrics or fibres, although normally falling within the B2 use, could also be carried on within B1 since much of the processes are relatively quiet. The manufacture of carpets and other textile floor coverings will again normally be associated with the B2 use.**	**C12. Textile Industry**
B2	**The processing of natural or synthetic rubber can be carried on within the B2 use.**	**C13. Rubber Industry**
B2 & B8	**The dismantling, repairing or maintenance of road transport or road haulage vehicles can be carried on within the B2 use. This is often an ancillary use of a B8 distribution warehouse unit.**	**C14. Infrastructure**
Sui generis	These uses are not material to the property investment market; they include, for example, sewerage works and landfill sites.	C15. Waste Disposal
A1, B1 & B2 (Miscellaneous High Street Trades)	**Premises housing dry cleaning operations could fall into A1, B1 or B2. Laboratories for educational or research purposes can be carried on within sub - group b of the B1 class.**	**C16. Miscellaneous**

Source: Adapted from Section 143 of the Environmental Protection Act 1990, and Annex C of the Environmental Protection Act 1990, which contains a schedule of contaminative uses.

offer investors, is a medium to allow them to determine the percentage of their property portfolios which *could* be occupied by tenants who carry on activities which have the potential to pollute. It is possible to cross-reference the UCO with the abandoned Section 143 registers to provide a very basic assessment of the level of direct environmental risk associated with each land use, by simply counting the number of times potentially contaminative uses appear in the various planning groups[2]. Figure 4:1 highlights those use classes in which potentially polluting activities can be carried on.

Figure 4:1
Schedule of Contaminative Uses



It should be noted that there are obvious limitations to this type of assessment. Firstly, the B2 use is shown to be a high environmental risk group. However, it would be inaccurate to suggest that those property investment companies with a high allocation to this type of property necessarily carry this level of risk. Many of the B2 uses that cause environmental damage are very large units which are invariably owner-occupied and do not, therefore, play a role in the property investment market. Similarly, some of the B2 units existing within a portfolio may actually be occupied by tenants carrying on a B1 activity, which carries significantly lower levels of environmental risk. Therefore, whilst it is obviously the case that property investment companies with a large allocation to industrial property, particularly those with a significant B2 allocation, will carry higher levels of direct environmental risk, in order to be able to carry out any meaningful analysis of this risk, it is necessary to be aware of the tenants' activities. The examination of tenant activities is considered in more detail in section 4:5.

[2] The B2 group does not include uses previously included in the SIGs of the UCO.

4:3.2 BRITISH STANDARDS INSTITUTION

Guidance notes have been published by the British Standards Institution on identifying land which may be contaminated (British Standards Institution, 1988). These notes provide many examples of the types of uses which are particularly likely to cause land contamination problems. Although it includes many uses associated with heavy industrial, owner occupied property, the list also includes uses associated with the B1, B2 and B8 use classes.

One such use includes metal finishing, where the manufacturing processes include the use of metals and solvents. This could be a B2 use, or a B1(c) use where, for example, small starter engineering units are in ownership. Paper and printing works, and industries making or using wood preservatives are also listed and these were highlighted in Table 4:1.

4:3.3 DEPARTMENT OF THE ENVIRONMENT

The Interdepartmental Committee on the Redevelopment of Contaminated Land (ICRCL) Guidance Note sets out a systematic approach for the assessment of contaminated sites (Interdepartmental Committee on the Redevelopment of Contaminated Land, 1987). In a similar fashion to the BSI guidance note, the report highlights the type of uses which can cause contamination problems. The list includes, amongst the uses found within the B1/B2 category, paper and printing works and industries making or using wood preservatives. However, the guidance note goes on to advise that the list is not exhaustive, and that "there may be many possible sources of contamination: leakages or spillages from pipes and tanks; ... (and) storage and disposal of raw materials ..." (ICRCL, 1987: 2). Pollution of this nature can obviously be caused by a number of B1, B2 and B8 uses.

4:3.4 NATIONAL RIVERS AUTHORITY

The National Rivers Authority (NRA) have a duty under the Water Resources Act 1991 to monitor and protect the quality of groundwater (Section 84) and to conserve its use for water resources (Section 19). It is important, therefore, for the NRA to be aware of the types of activity which can pollute this very important source of water and hinder their attempts to discharge their statutory duty. They have published a policy which outlines their approach to protecting groundwater (National Rivers Authority, 1992) which indicates the type of activities likely to contaminate land and threaten groundwater supplies.

This makes clear that industrial manufacturing premises, where chemicals are widely used, form a major category of contaminated land, as does the manufacture and use of organic liquid chemicals, particularly chlorinated solvents and acid metallic solutions (*ibid*: 46). Oil and petroleum storage has resulted in many instances of groundwater pollution, both from leakage and the accidental rupturing of tanks and pipe work (*ibid*: 47). The use of chemicals and solvents, and the storage of oil and petroleum are activities that various B1, B2 and B8 tenants undertake at some stage.

4:3.5 THE RPS MANUAL[3]

The RPS Manual is aimed at financial institutions and has been written to help them assess the " ... level of environmental risk that may be associated with property ownership and certain types of uses or occupation" (RPS, 1994: 1). The guide can be used to gauge the overall level of risk which is associated with the current use of a site, the past uses of a site and the environmental sensitivity of a location. In providing this information, the guide lists potentially contaminating/polluting uses,

[3] The RPS Manual is produced by the RPS Company. They are a firm of environmental specialists with their head offices in London.

and provides information on the kind of problems which may be associated with them.

The Table below indicates some potentially polluting uses and their associated land use classes.

Description of Land Use	**Planning Use**	**Risk Level**
Food Preparation and Processing	B1, B2	Low
Mechanical Engineering	B1, B2	Medium
Metal Finishing/Electroplating	B2	High
Paint and Ink Manufacturing	B2	Medium
Printing Works	B2	Low
Textiles	B1, B2	Low
Timber Treatment	B1, B2	High
Source: The RPS Manual and the UCO		

Table 4:2 Examples of land uses and their associated environmental risk level

The Loss Prevention Council (1992) has also produced a report which identifies high risk industries, and the impact of increasing legislative controls upon those industries. It also indicates that whilst many of these high risk industries are usually carried on within owner-occupied property, some of them can be undertaken in industrial properties which have traditionally made up part of property investment portfolios. Appendix Two of that report lists 25 uses with serious pollution potential. Institutional and property investment company landlords may be exposed to direct environmental risks in relation to the following: Electrical/electronics; fibres/textiles; food processing; paper and pulp; and wood preserving.

4:4 CASE LAW

Recent case law can also be a helpful guide in identifying the type of uses which have been responsible for pollution incidents. The cases that follow confirm that properties with a planning permission for light manufacturing, research and development and/or storage and distribution are capable of causing environmental damage.

4:4.1 NATIONAL RIVERS AUTHORITY V WELSH DEVELOPMENT AGENCY[4]

In this case a discharge of caustic soda, which originated from a leak in a tank kept by a tenant on an industrial estate, was released into a controlled water contrary to sections 107 (1) (c) and 107 (6) of the Water Act 1989 and contrary to section 4 (1) of the Salmon and Freshwater Fisheries Act 1975.

The tenant responsible for the discharge was involved in the manufacture of architectural glazing systems for aluminium double glazing companies. It occupied a typical B2 unit on an industrial estate, a property type which usually forms part (albeit a relatively small part) of an institutional property portfolio. Property investment companies can, of course, hold a great deal of such property within their portfolios.

4:4.2 NATIONAL RIVERS AUTHORITY V WRIGHT ENGINEERING COMPANY LTD[5]

The case clearly shows that it is not only the tenant's main commercial activities which can lead to pollution problems, but also ancillary uses. The company made

[4] E.G.C.S. 160; [1993].

[5] Divisional Court, 15th November, 1993.

use of an oil-powered heating system to heat their premises. The heating oil storage tank was situated adjacent to a surface water drain which led to a nearby brook. There was a subsequent leakage of oil which caused the nearby brook to become polluted.

The use of oil as a heating fuel for buildings is perhaps more related to the age of a property rather than its use. It could, therefore, be that older office and industrial properties carry this risk, as opposed to relatively new properties using alternative energy sources.

4:4.3 SCHULMANS INCORPORATED V NATIONAL RIVERS AUTHORITY[6]

This case was very similar to Wright Engineering (see 4:4.2 above) and arose from a spill of fuel oil from the appellant's premises which leaked into the River Ebbw via the drainage system. This again highlights that the storage of fuel can be a potential source of prosecution.

The storage of fuel for the purposes of heating premises will be relevant to various types of property, but could certainly include B1, B2 or B8 premises. The use of fuel and oil during a manufacturing process may also be relevant to B2 properties in particular, and it could be relevant to B8 properties where vehicles are re-fuelled, repaired/maintained and washed down before leaving a warehouse distribution centre.

4:4.4 LEIGHTON FINISHERS LIMITED V NATIONAL RIVERS AUTHORITY[7]

Leighton Finishers Ltd, (a metal finishing company) pleaded guilty to the offence of allowing cyanide to leak into a nearby watercourse. It was caused when a drum of

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[6] Queens Bench Division, unreported, December 3rd, 1991.

[7] Reported in the Leighton Buzzard Observer, 5th November, 1991

chemical waste was disturbed by vandals outside the premises. The company were prosecuted under section 4 of the Salmon and Freshwater Fisheries Act 1975.

Whilst such land uses will normally be associated with larger, predominantly owner-occupied industrial units, it is certainly possible that a smaller B2 unit and possibly a B1 unit could accommodate such activities.

4:4.5 FOLIEJON ESTABLISHMENT V. GAIN S.A.[8]

This case demonstrates the risks associated with research and development premises. The case was concerned with the accuracy of warranted replies to preliminary questions given by the vendor, and the detailed facts are not relevant. One of the properties for sale had been used as a laboratory, carrying on highly specialised research in the development of high-purity metal alloys. The environmental audit, which was commissioned by the purchaser, indicated that part of the laboratories, the drainage system and surrounding land, and an adjacent stream running through the estate were seriously contaminated - although the original estimates of contamination and clean-up were successfully challenged. The research and development activity - a use which is certainly permitted to be carried on within a B1 land use - had, therefore, caused contamination/pollution problems.

4:5 POLLUTION CONTROL SYSTEM

The most effective method of determining whether tenants actually do carry out potentially polluting processes on site is to consult the "pollution control system". Once this system of direct environmental risk assessment is utilised it is necessary to be aware of the tenant's activities, rather than identifying which part of the UCO the property belongs to, or which broad category the tenant comes under in publications such as the RPS Manual and the Loss Prevention Council's Report. The various

[8] Chancery Division, July 7th, 1993.

components of the pollution control system exist as a series of registers, which are open to inspection to the public by virtue of the European Directive on Freedom of Access to Information on the Environment (European Union, 1990). This method is, therefore, rather more expensive since it requires research to be undertaken, although it is becoming more popular with some landlords (see, for example, the investor interviews). This exercise is either undertaken by environmental auditors, who may also be asked to carry out an environmental investigation into the past uses of a site where it is subject to a purchase decision, or by the investor's management surveyors, particularly where the property is already in ownership.

4:5.1 PUBLIC REGISTERS

These registers will give an indication as to the potential for a tenant's activities to cause environmental damage. It is common to use the registers in conjunction with the guidance referred to above. For example, the proposed Section 143 register, which, although now abandoned, still allow an investor to determine whether a use is potentially contaminating. As discussed in section 4:3.1, upon letting a property, some landlords attach this list to the leasing documentation which explicitly prohibits any such use being carried on in the future.

4:5.1.1 Hazardous Substance Consents

The Planning (Hazardous Substances) Act 1990 demands that where certain dangerous substances are kept below, on or over land in sufficient quantities, actual or deemed consent is required from the Hazardous Substances Authority. Section 28 of the Act requires a register of applications and consents to be kept.

4:5.1.2 Integrated Pollution Control and Local Authority Air Pollution Control

Under the Environmental Protection Act 1990, statutory registers must be kept in relation to Part A and Part B processes which fall under Part I of the Act. These registers provide a useful source of information concerning processes capable of releasing pollutants into the environmental media of air, land and water. The Part A processes are governed by Her Majesty's Inspectorate of Pollution (HMIP), and the Part B processes, which are concerned with releases into air only, are regulated by the relevant Local Authority.

4:5.1.3 Water Pollution Control Registers

Under the Water Resources Act 1991, the NRA can grant discharge consents into controlled waters. These consents are required to be kept on public registers under section 190 of the same Act. Whilst the register may be of limited use in determining whether land is at present contaminated, it should alert potential investors to the fact that there are processes being carried out on site which could result in a pollution incident.

4:5.1.4 Trade Effluent Discharge Registers

The relevant sewerage undertaker, by virtue of section 196 of the Water Industry Act 1991, must keep registers of consents to discharge trade effluent to public sewers. The information kept on these registers will allow investors to determine the nature of the current trade use of the premises. These pollution registers may also prove to be a useful source of information concerning conditions which have been applied to any authorisations, consents or licences. The conditions may be particularly stringent, or indicate that poor performance in the past has led to the revocation of consent; this type of information will be particularly interesting to potential property investors.

By consulting the pollution control system, particularly where alternative guidance is also used, investors can assess the environmental risk within their existing portfolios, or in any prospective investment, more accurately than the planning control system would allow on its own.

Having reviewed the relevant information sources it seems likely that many institutional and property investment company portfolios will include some properties occupied by tenants who will be capable of causing environmental damage. Obviously, certain investors will be exposed to a greater extent than others. A property investment company with a large allocation of B2 type units is likely to be subject to higher levels of direct environmental risk than an institutional investor with say, three quarters of its property portfolio in retail property.

Where environmental damage is caused by tenants occupying industrial property, it is uncertain as to which party (landlord or tenant, or both) will be liable to criminal prosecution and statutory clean-up costs. The remainder of this Chapter addresses this issue.

4:6 LANDLORD LIABILITY FOR ENVIRONMENTAL DAMAGE

The interpretation of environmental legislation within this section of the thesis was supported by the interviews which were conducted with environmental lawyers. Details of the interviews are provided in Chapter Five, and transcriptions can be found in Volume II of this thesis.

Historically, so long as tenants paid their rent and kept the demised premises in good and substantial repair, landlords showed little interest in the activities of the occupying tenant during the lease term (Pagella *et al*, 1993). Typically this is no longer the case, with landlords updating lease provisions in an attempt to ensure that tenants carry on their activities in accordance with environmental legislation and in a fashion which does not pollute or contaminate the demised premises, adjoining land or the

environment. This approach has been pursued principally in an attempt to preserve the value of the landlord's reversion, as well as to avoid inheriting environmental liabilities associated with a contaminated site upon the expiry of the lease. Various research and several commentators have argued for this approach to be accompanied by a consideration of a tenant's potential to cause environmental damage.

Deanesly *et al* (1993) argue that a major issue now facing landlords is whether their tenants are complying with the plethora of environmental legislation now facing them. Moss (1993) agrees, and suggests that in the future landlords are likely to examine not only the financial standing of a tenant, but also the tenant's legal compliance record. Aylwin (1992) and Pagella *et al* (1993) contend that the existing lease provisions are inadequate to protect the landlord from environmental damage which may be caused by tenants. Both suggest that landlords need to be aware of their tenants' activities, and that lease provisions need to be updated in order to protect landlords. Research undertaken by Pagella *et al*, (1993) and Hillier Parker (1994) illustrate that the property market itself considers it important to be aware of the environmental risks posed by tenants currently occupying their investment portfolios. Hillier Parker found that 67 per cent of property investors had investigated present occupiers' use of the premises to assess levels of environmental risk. The Royal Institution of Chartered Surveyors (1993) has advised its members to take into account the activities of current tenants since it has recognised that the current " ... use of a building may cause [environmental] problems ...". The author's own published work has argued strongly for such an approach (Turner *et al*, 1994a, 1994b and 1994c). More recently, research undertaken on behalf of the RICS Education Trust suggests that the " ... environmental risk encompassing a tenant's polluting activities ... " is worthy of further research (Lizieri *et al*, 1995: 24). The survey carried out during the RICS research discovered that approximately three quarters of those investors questioned " ... took into consideration potentially polluting activities ... " when making investment decisions (*ibid*, 1995: 48).

Since various commentators and property investors are concerned with the potentially polluting activities of tenants, it is probable that they have their own concerns relating to potential environmental liabilities. If investors were confident that a tenant's ability to pollute the environment would not impact upon their investment returns, it is

unlikely that covenants would have been introduced requiring tenants to comply with all environmental legislation. It is even more unlikely that Hillier Parker (1994) and Lizieri *et al* (1995) would have found that 67 per cent and 75 per cent respectively of property investors were taking into account potentially polluting activities in investment decisions. These developments warrant a specific investigation into the interpretation of ambiguous wording within environmental legislation in the context of the landlord and tenant relationship.

4:7 "CAUSING AND KNOWINGLY PERMITTING"

For the purposes of this research it is not necessary to review every relevant environmental statute or regulation under which landlords may potentially become criminally liable as a result of their tenants' activities. As a result of recent case law, landlords should, however, be aware of some of the principal provisions of the Water Resources Act 1991 ("WRA") and the Environmental Protection Act 1990 ("EPA") and, in particular, the criminal trigger terms of "causing" or "knowingly permitting" which have been used by the Parliamentary draftsmen to impose liability upon potentially responsible persons.

Landlords should consider Section 85 of the WRA and Section 33 of the EPA. Section 85 of the WRA lists the principal water pollution offences. A person will be liable under this provision if he **causes** or **knowingly permits** any poisonous, noxious or polluting matter or any solid waste to enter any controlled waters".[9]

Similar "trigger terms"[10] are contained within Part II of the EPA which deals with the principal pollution offences relating to waste management. It is, *inter alia*, an offence to "**knowingly cause**" or "**knowingly permit**" the deposit of Directive Waste[11] in or on

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[9] Water Resources Act 1991, Section 85(1).

[10] The phrase "trigger terms" was developed by Jarvis and Fordham (1993)

[11] Directive Waste is defined by the Waste Management Licensing Regulations 1994. SI 1994 No. 1056.

treatment, keeping or disposal of Directive Waste in a manner likely to cause pollution of the environment or harm to human health[12].

In addressing the question as to whether landlords can be made liable under these "trigger terms" as a result of their tenants' activities, it is necessary to examine the meanings of these various phrases.

4:7.1 "CAUSING"

The House of Lords' decision in *Alphacell Limited v Woodward*[13], whereby the defendants were convicted of causing polluting matter to enter a river, is still the leading authority on the meaning of the phrase causing.

As part of the defendants' manufacturing process, process water was piped into settlement tanks. The volume of water entering these tanks was controlled by automatic pumps which were designed to switch off when the maximum volume was reached. As a result of mechanical problems the pump failed and, without the defendants' knowledge, polluted process water was allowed to overflow from the defendants' settlement tank into the river. In upholding the original conviction, the House of Lords confirmed that it was not necessary for the defendants to have acted with knowledge when causing the pollution nor was it necessary to prove they had acted negligently. By pumping water into the settlement tanks they had set in motion a chain of events and, therefore, had caused pollution. In addressing the provisions of the relevant statute it was acknowledged that two separate offences had been created:

> "causing", which must involve some active operation or chain of operations involving as a result the pollution of the stream; "knowingly

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[12] Environmental Protection Act 1990, Section 33

[13] *Alphacell Limited v Woodward* [1972] A.C. 824.

> permitting", which involves a failure to prevent the pollution, which failure, however, must be accompanied by knowledge" (per Wilberforce at p. 838).

Landlords would be unwise to assume that in leasing land they can never be implicated in pollution incidents arising as a result of their tenants' actions. Attempts at making the freehold owner liable for the actions of others on or from their land in this context is not new.

In *Price v Cromack*[14] the appellant, a freehold owner of land, had entered into an agreement to allow effluent created by an industrial company to pass on to his land and be dispersed. With consent, two lagoons were built by the company on the appellant's land to contain the effluent. Subsequently, the regulators found two cracks in the walls of the lagoons which resulted in the effluent escaping into a nearby river. The appellant was convicted of causing poisonous, noxious or polluting matter to enter the river contrary to the Rivers (Prevention of Pollution) Act 1951.[15]

The appellant successfully appealed against the Magistrates' conviction. The Divisional Court held that the offence of causing polluting matter to enter into a river required some positive act on the part of the accused and not merely a passive looking on. The effluent had come onto the appellant's land and passed from there into the river by natural forces without any positive act by the appellant. It could not therefore be said that the appellant had caused the polluting matter to enter the river. In reaching its decision, the Court was helped somewhat by the fact that the defendant had been charged under the causing element of the offence. The question had not been put before the Divisional Court as to whether the appellant had been guilty of knowingly permitting the discharge.

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[14] *Price v Cromack* [1975] 2 All ER 113.

[15] Now Water Resources Act 1991, Section 85.

Counsel for the respondent argued (unsuccessfully) that the appellant had caused the pollution (i.e. was responsible for a positive act) as he had entered into an arrangement to receive the effluent from the industrialist concerned, justifying the charge of causing rather than knowingly permitting. Notwithstanding this result, the scope for landowners to become liable in similar circumstances for knowingly permitting is certainly possible as a result of Ashworth J's expressed view:

> "that it would have been difficult for the present defendant to provide an answer if indeed he had been charged with knowingly permitting the effluent to escape into the river... though it is obiter, I cannot resist saying that I do not see what answer the present defendant could conceivably have had in the circumstances of this case" (per Ashworth at p. 119).

Nonetheless, when considering whether pollution has been caused each case has to be looked at on its facts. Recent cases confirm that some positive or deliberate act of the defendant is required but not necessarily knowledge or negligence. Merely carrying on a business appears to be enough. In this sense it is a strict liability offence. Three recent cases illustrate the point.

In *CPC (UK) v National Rivers Authority*[16] the Court of Appeal upheld CPC's conviction for causing polluting matter to enter into a river where cleaning fluid had leaked from CPC's defective factory pipe which had been incorrectly installed by sub-contractors of a prior owner. This was a latent defect which could not have been revealed by a survey at the time of CPC's acquisition, and it was accepted that CPC could not have done anything to prevent the leakage. However, the Court of Appeal held that the fact that the defect was latent was irrelevant, since no fault or knowledge had to be proved against CPC. Similarly, it was irrelevant that some other person i.e. the sub-contractors, might have contributed to the escape, since the offence did not require proof that the defendants were the sole cause of the pollution.

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[16] *CPC (UK) v National Rivers Authority*, Court of Appeal Criminal Division 15th July 1994, The Times, 4th August 1994.

This approach was confirmed by the House of Lords in National Rivers Authority v Yorkshire Water Services Limited[17] in a case which considered whether Yorkshire Water Services Limited (YWS) were liable for causing poisonous, noxious or polluting matter to enter controlled waters.

Sewage had entered YWS's sewage treatment works via a sewer which led into an inlet chamber. The sewage flowed along a channel into primary tanks, where some settlement took place. It then flowed by gravity to filter beds where it was treated. The resultant liquid then flowed into humus tanks and, after further settlement, continued to flow by gravity and was discharged into controlled waters. YWS had been granted a sewage effluent discharge consent subject to conditions as to its nature, volume and composition. YWS had in turn granted trade effluent consents to industrial customers to discharge trade effluent into sewers which inter alia included a condition not to discharge Iso-octanol. On a night in May 1990, when no-one was on duty at the sewage works, an unknown person unlawfully discharged Iso-octanol into the sewer which passed into and through the works then into the controlled water. YWS could not reasonably have been expected to prevent the discharge of that substance and the earliest time it could have known of its presence was when it had entered the works. Thereafter, its discharge into controlled waters was inevitable.

YWS was prosecuted and convicted by magistrates under section 107(1)(a) of the 1989 Water Act.[18] Its appeal to the Crown Court was allowed, and the question of whether YWS caused the pollution was ultimately decided in the House of Lords. In applying the reasoning of *Alphacell Limited v Woodward* to the present case, the House of Lords concluded that what was being discharged was not only Iso-octanol, but also other materials, and it was in respect of the whole discharge that the complaint was raised. YWS, having set up a system for gathering effluent into its sewers and thence into its sewage treatment works there to be treated, had set up an arrangement deliberately intended to carry the result of that treatment into controlled

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[17] *National Rivers Authority v Yorkshire Water Services Limited* [1994] 3 WLR 1202.

[18] Now Water Resources Act 1991, Section 85

waters. The special circumstances surrounding the entry of Iso-octanol into its sewers and works did not preclude the conclusion that YWS caused the resulting discharge. YWS was however able to avoid liability due to a specific statutory defence which was available to them as a statutory undertaker.

In January of this year (1995) the Court of Appeal[19] was asked to decide certain points of law on a reference by the Attorney-General under Section 36 of the Criminal Justice Act 1972. These arose from the acquittal in the Crown Court of three respondents who operated a sewerage system through which highly toxic sewage entered a stream, which flowed into a river, killing fish over a three mile stretch of water.

The first respondent was responsible for collecting and disposing of highly toxic waste and oils. The second respondent was the sewerage undertaker for the area with statutory duties to provide and maintain sewerage disposal systems. The third respondent, the local borough council, was responsible for managing duties, delegated to it by the sewerage undertaker, of various sewerage duties on a day-to-day basis under a commercial agreement for profit. The three respondents had been charged under Section 107 of the Water Act 1989[20]

The Court of Appeal addressed three points of law:-

1. Where various persons executed different and separate acts and either each of the separate acts contributed to the matter entering the waters or where, without either of the acts the material would not have entered the waters could; the offence of causing polluting matter to enter controlled waters be committed by more than one person?

[19] *Attorney - General's Reference (No. 1 1994) Opinion,* The Times, 19th January 1995.

[20] Now the Water Resources Act 1991, Section 85.

The Court held that if there is a joint enterprise the answer would be "yes". Further the answer would still be "yes", where one or more persons executed different and separate acts. The facts of the present case illustrated the impracticality of confining causation to one party. A jury faced with concurrent causative conduct by more than one party would experience difficulty and reluctance in choosing one culprit;

2. whether the conduct of a sewerage business by a statutory undertaker, whereby polluting material was accepted and disposed of into a stream by a defective pumping system, comprised a chain of operations and therefore a positive act sufficient to constitute causing. This answer was effectively provided by the decision in *National Rivers Authority v Yorkshire Water Services Limited.* The sewerage company set up and owned a system to carry out its statutory duties. If sewerage passing through the system polluted controlled waters, the company had participated in an active operation or chain of operations involving as a result the pollution of the stream. The jury would be entitled to find the company guilty of causing the offence;

3. Whether the failure to maintain the pumping system negligently and/or in breach of the defendant's statutory duty, constituted a positive act or chain of operations sufficient to constitute causing. As stated, the answer must be in the negative: failure implied omission rather than causation. The question could be rephrased. Was running a system in an un-maintained state sufficient to constitute causing? Where a party had undertaken the day-to-day running and maintenance of a sewerage system, if it failed properly to maintain the system and ran it in an un-maintained state, that would be sufficient to entitle the jury to find that party guilty of causing pollution resulting from lack of maintenance. If one or more of the pumps necessary to avoid pollution were removed and pollution resulted from the removal, then the remover could properly be found guilty of causing pollution.

The Court of Appeal relied upon four leading authorities[21] in order to clarify the main issues raised:-

1. it was a question of fact in each case whether a defendant caused the polluting matter to enter controlled waters;

2. the word knowingly was not to be implied as qualifying the word causes in section 107(1)(a)[22];

3. the word causes involves some active participation in the operation or chain of operations resulting in the pollution of controlled waters; and

4. "Mere tacit standing by and looking on" per Lord Widgery, Lord Chief Justice in *Price v Cromack* was insufficient to amount to causing; whether the *Wychavon* case would now be decided in the same way might be open to doubt following *National Rivers Authority v Yorkshire Water Services Limited* but Lord MacKay of Claschfern, Lord Chancellor was content in that case to say that *Wychavon* was a decision on its particular facts.

In light of the above it is, however, difficult for landlords to gain comfort from *Wychavon*, where the Queens Bench Divisional Court's allowed an appeal of the Wychavon District Council against its conviction by the Evesham Justices on 11th October 1990, for causing an overflow of raw sewage to the River Avon in March 1990.

The facts of that case were as follows. During the evening of 11th March 1990, raw sewage was discharged from a sewer into the River Avon. This discharge continued until late the following morning some twenty-four hours after the Council had been

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[21] *Alphacell Limited v Woodward* [1972] AC 84; *National Rivers Authority v Yorkshire Water Services Limited* [1994] 3WLR 1202; *Price v Cromack* [1975] 1 WLR 988; and *Wychavon District Council v The National Rivers Authority* [1993] 1 WLR 125.

[22] Now Water Resources Act 1991, Section 85.

initially notified of the discharge. The Council claimed that their contractors had searched for the discharge but had not been able to find it before dark.

The District Council, as the sewerage agent for the Severn Trent Water Authority on whose behalf it carried out the operation, maintenance and repair of sewers, had the day-to-day responsibility for the sewage system in the area. The NRA contended that the Council had caused the sewage to enter the river by failing to prevent, or take steps to clear a blockage in the system for which it was responsible and failing to stop the discharge as soon as possible thereafter. The Court held that the causation required a positive or deliberate act, that the appellants had only passively looked on, and that such passive inaction could not be regarded as a positive or deliberate act. There was nothing to point to the performance by the Council of either a positive or deliberate act such as could properly be said to have brought about the flow of sewage into the river. There were facts that pointed to inactivity amounting possibly to negligence, which could amount to knowingly permitting sewage to be discharged, but the Council had not been charged with that offence.

The decision seems to regard the immediate cause of the discharge, namely blockage in the sewerage system, as the cause of the pollution and not the underlying active operation, namely the sewerage system itself. Perhaps the real persons liable for causing were the statutory sewerage undertaker themselves who had set up the sewerage system and not the Council as they were only acting as agent operating on a day-to-day basis. This case is likely to have been considered differently in the light of *Yorkshire Water Service Limited v NRA*.

It is clearly possible for a landlord to be one of the actors involved in the operation or chain of operations resulting in pollution and, therefore, being charged with causing pollution, for example, where a landlord is responsible for setting up a sewerage drainage system for his industrial tenants and where responsibility for managing the system is retained. Indeed the NRA have already pursued a landlord as a result of a pollution incident occurring from one of its tenants' premises in these circumstances.

In *National Rivers Authority v Welsh Development Agency*[23], decided before the Yorkshire Water Services case, the NRA prosecuted the Welsh Development Agency for a pollution incident.

The WDA had developed an industrial estate and the factory units were subsequently let to various tenants. Prior to the development, the WDA was granted a consent by the NRA to discharge surface water run-off from its site into controlled waters. Each lease prohibited the discharge of effluent as it would cause pollution. As a result of caustic soda being discharged by one of the tenants a pollution incident occurred. The NRA claimed the landlord had caused the pollution as it had constructed and retained overall responsibility for the drainage system. At appeal, it was held that the landlord was not guilty as it had not been involved in a positive or deliberate act.

Although a victory for the landlord on the facts, it is submitted that as a result of the more recent and more authoritative decisions, the NRA are unlikely to be deterred in bringing a charge against landlords in similar circumstances. In contrast to the WDA prosecution, the Court of Appeal held in *Taylor Woodrow Property Management Limited v National Rivers Authority*[24] that it was unrealistic to argue that a defendant was not criminally liable because it had not committed a positive act[25]. Consequently, there has already been a successful prosecution of a landlord as a result of the tenant's polluting activity.

Some have argued that in the future, the NRA may be advised to pursue prosecutions against both landlord and tenant (ENDS Report, 1993), especially as a defendant's

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[23] *National Rivers Authority v Welsh Development Agency* - The Times December 29 (1992) EGCS 160 (1993).

[24] *Taylor Woodrow Property Management Ltd v National Rivers Authority,* The Times, July 14th 1994).

[25] Here the landlord was found guilty of contravening the conditions of an existing discharge consent, as opposed to "causing or knowingly permitting", a pollution offence. However, the landlord was successfully prosecuted under the WRA for a pollution incident stemming from a tenant's activities, which in itself demonstrates the potential liabilities that face landlords for their tenants' polluting activities.

actions do not need to be the sole cause of pollution. Accordingly, the potential for a landlord being joined in an action against a tenant for contributing to a pollution incident has increased.

4:7.2 "KNOWINGLY PERMITTING"

There is the possibility that by merely letting premises for a specific purpose for which he is aware, a landlord may be found guilty of knowingly permitting pollution. To knowingly permit an offence involves knowledge of the facts constituting the offence together with an express or implied authorisation of the relevant offence. The term also covers circumstances where a defendant fails to take steps to prevent the offence when it is possible to do so.

Commentators have stressed that permitting involves notions which are both active and passive (Jarvis and Fordham, 1993). Active notions include the grant of permission or the activities of a manager. "Passive" permitting relates to the failure to prevent or failure to investigate and includes acquiescence. This was discussed in *Price v Cromack* where it was stated that,

> "the creation of an offence in relation to permitting pollution was probably ... to deal with the type of case in which a man knows that contaminated effluent is escaping via his land into a river and does nothing at all to prevent it" (per Ashcroft at p. 849).

Ashcroft J confirmed that knowingly permits should not be limited to circumstances in which the knowledge and the deemed permission, or act of permission, occurs after the discharge has started. In doing so he acknowledged that the prior "go-ahead" of an activity with a propensity to pollute was sufficient.

Case law suggests that coupled with the prior "go ahead", there must be the accompanying ability/power to stop the activity. For example, in *Berton v The*

Alliance Economic Investment Co [26] permit was held to mean to give leave for an act which without that leave could not legally be done, or to abstain from taking reasonable steps to prevent the act where it is within a man's power to prevent it. This approach has been confirmed by Lord Upjohn in *Tophams v Sefton*[27]. Permit is " ... a word connoting on the part of the one whose permission is asked, the right effectively to refuse and on the part of the applicant the necessity to ask for and obtain permission, so as lawfully to undertake his proposed course of action" (per Upjohn at p. 75). On the other side of the coin is the view that " ... in certain circumstances a man may permit the continuance of an act if he can prevent it by taking legal proceedings and refrains from doing so" (per Luxmoore at p. 377).

In *Ashcroft v Cambro Waste Products*[28] proceedings were brought against the defendant's failure to comply with the conditions imposed by a waste disposal licence contrary to Section 3 of the Control of Pollution Act 1974. The licence terms imposed conditions, including that oil waste be covered with over-burden and blue asbestos with incombustible material. The local authority found that these terms were not being complied with and the company was prosecuted for knowingly permitting the deposit of waste other than in accordance with the conditions of the licence. The company was acquitted on the ground that, whilst its foreman was aware that the conditions were being breached, the company was not, nor was it infected by the foreman's knowledge since he was not a "directing mind" of the company. The prosecution appealed and the Divisional Court allowed the appeal. It was held that the prosecution did not have to prove that the defendant company knew that the conditions were not being complied with by its employees or agent. Instead knowingly meant that the defendant company must be shown to have had knowledge that controlled waste was being deposited on site. If the defendant company had that knowledge it would have knowingly permitted the deposit, and its way of avoiding liability was to show that the deposit was in accordance with the licence.

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[26] *Berton v The Alliance Economic Investment Co.* [1922] 1 K.B. 742.

[27] *Tophams v Earl of Sefton* [1967] 1 A 50 at 75.

[28] *Ashcroft v Cambro Waste Products* [1981] 1 WLR 1349.

Parallels can be drawn with a landlord who permits the discharge of trade effluent from the demised premises which either directly, or through estate sewers, enters controlled waters or public sewers, but adds the restriction that such discharges must be in accordance with the terms of the relevant discharge consent. The landlord is "permitting" the discharge by giving the "go-ahead" for the activity. It is arguable that it is irrelevant whether he needs to have knowledge that the discharge is being made in breach of the conditions attached to the consent. The ramifications for landlords could be significant. The landlord's dilemma is intensified in cases where tenants persistently breach the terms of the discharge consent or even discharge effluent without authority. Can landlords turn a blind eye if they are aware of the persistent discharges? The answer must be no, as such knowledge may in any circumstances be inferred. An important case in relation to the scope of required knowledge is *Schulmans Incorporated Ltd v National Rivers Authority*[29]. Following a spill of fuel oil into a river, Schulmans were successfully prosecuted for knowingly permitting poisonous matter to be discharged into controlled waters. The case confirmed that "constructive" knowledge will suffice for a knowingly permitting offence under section 85 of the WRA 1991. Laggart L J decided that knowledge could be inferred where someone deliberately shut their eyes to the obvious, or refrained from inquiry because they suspected the truth but did not want their suspicions confirmed.

Ashcroft v Cambro Waste Products shows that the defendant needs to have had knowledge only of the polluting act, not its illegality. In relation to waste management offences under section 33 of the EPA, there is a degree of comfort in the "due diligence" statutory defence, that the defendant took all reasonable steps open to him to ensure the conditions were complied with[30]. However, the knowingly permitting offence under section 85 of the Water Resources Act carries no such defence.

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[29] *Schulmans Incorporated Ltd v National Rivers Authority* (Unreported, 3rd December 1991, Queens Bench Division).

[30] Environmental Protection Act 1990, Section 33(7)(a).

In comparison to *Ashcroft v Cambro Waste Products* a less strict approach was taken by the House of Lords in *Westminster City Council v Croyalgrange*[31]. Here the defendant was charged with knowingly permitting the use of premises as a sex establishment other than in accordance with a licence contrary to Schedule 3 of the Local Government (Miscellaneous Provisions) Act 1982. No offence would have been committed if an application for a licence was pending. The defendant had sub-let his property. The sub-tenant had neither a licence, nor had he taken steps to apply for one. The defendant knew that the premises were being used as a sex establishment, but had contended that he had honestly believed that an application for a licence had been made by or on behalf of the sub-tenant in due time but had not been determined. The defendant was acquitted.

The case turned on whether knowledge of the actual use was sufficient for a conviction, or whether knowledge of the illegality of the use itself was necessary. Upholding the acquittal, the House of Lords ruled that on the true construction of the relevant provisions of the Act, it was necessary for the prosecution to prove both knowledge of the use of the premises as a sex establishment and knowledge that such use was other than in accordance with the licence. In dismissing the Council's view that knowledge of the use was sufficient, Lord Bridge stated that if this view was accepted:

> "it would lead to the conclusion that paragraph 20(1) (A) had in effect created an offence of strict liability. The offence would consist in the unlawful use of premises as a sex establishment and even an honest belief in facts which, if true, would make the use lawful would afford no defence. It is trite law that the legislators intention to create an offence of strict liability must be signified by clear language. To find such an intention in that paragraph with its iteration of the word "knowingly" is obviously impossible. The only meaning of which the language is

[31] *Westminster City Council v Croyalgrange* [1986] 1 WLR 674.

> reasonably capable makes knowledge that the use of the premises as a sex establishment is a contravention of a prohibition imposed by paragraph 6 a necessary ingredient of the offence, i.e. knowledge of the act and its illegality" (per Bridge at p. 682).

Lord Bridge went on to say that it is always open to the tribunal, when knowledge on the part of a defendant is required to be proved, to base a finding of knowledge on the evidence the defendant had deliberately shut his eyes to the obvious or refrained from inquiry because he suspected the truth but did not want to have his suspicion confirmed.

Clearly a landlord is vulnerable to a knowingly permitting offence, once he is aware of a pollution incident and fails to prevent the continuation of the pollution. In such cases, the crucial question is likely to be what steps the landlord could have taken to prevent the pollution since, " ... a man cannot be taken to permit that which he cannot control" (per Upjohn at p. 65).

Tromans and Turrall-Clarke (1994: 80 - 81) neatly put the dilemma facing landlords:

> "in some statutory contexts the word "permit" connotes giving permission, leave or licence for something to be done. However, it can also mean abstention from taking reasonable steps to prevent something, where it is in within a man's power to prevent it. The difficulty then may lie in what constitutes reasonable steps: this may not necessarily equate to any steps which may be scientifically demonstrated to have a remedial or mitigating effect. Steps may include, the exercise of contractual rights to exert legitimate pressure on another party to cease polluting activity".

4:7.3 IMPLICATION FOR LANDLORDS

Where landlords, particularly those with significant industrial holdings, have become aware that tenants may cause environmental problems which could, in certain circumstances, be passed on to them, the response to date has usually been to review lease conditions "... with the intention of ensuring that their ... tenants use and occupy their property in such a way as to avoid problems with contamination which could be inherited by the landlord" (Pagella *et al*, 1993: 274).

These updated leases have tended to include tenant's covenants to comply with all environmental legislation, i.e. the tenant covenants to obtain all the necessary permits, licences and permissions to carry on his activities, and that these authorisations are complied with. These leases will also contain the landlord's usual rights of entry and inspection. Where these covenants are not complied with, the landlord could have grounds for terminating the lease (ENDS Report, 1994).

It is difficult to argue against this general approach taken by landlords to attempt to ensure that tenants do not pollute their land, or cause damage to any other land, by introducing these covenants. However, it has been argued that once landlords are explicit about the tenant's compliance with environmental legislation, they should then undertake all reasonable steps to ensure that the tenant is actually complying. If the owner fails to check the tenant's activities over a period of time and an environmental claim results, the landlord could become liable (see for example, Richard Ellis, 1993 and Smithers 1994).

Furthermore, *Price v Cromack* clearly demonstrates that landowners who allow polluting activities to be carried on on their land could be prosecuted under the heading of knowingly permitting. Others have also argued that where a landlord becomes aware of a situation and fails to prevent its continuation, he will be vulnerable to the argument that he is knowingly permitting it (Tromans and Turrall-Clarke). Paradoxically, the tenant's covenants, which are designed to reduce the landlord's potential exposure to environmental liabilities, also provide the landlord

with the two elements which are required for a knowingly permitting offence to have been committed, i.e. "knowledge of" and the "power to prevent".

The court may decide that a landlord has constructive knowledge of a pollution incident, through the rights of inspection that he enjoyed over the property.[32] Whether this knowledge is inferred upon the landlord will depend upon the facts in each case and the wording of each lease.

Where the pollution incident involves polluting matter entering a controlled water, which is the result of external storage of chemicals in a manner which is insecure, unbunded (inadequately contained), and situated close to surface water drains, the courts may well agree that the landlord should have been aware of this fact through the inspection procedures the lease bestowed upon him. The landlord will certainly have the powers to prevent the tenant from storing chemicals in such a fashion if the tenant has covenanted to comply with all necessary legislative requirements and not to undertake his activities in a manner likely to result in environmental damage. A court might be persuaded that the landlord had the contractual power to prevent a pollution incident and did not take the reasonable steps which were required to prevent it. Chapter Six discusses this situation in more detail in relation to the properties which were inspected for the purposes of this research.

A recent case involving the London Docklands Development Corporation (LDDC)[33] has clearly shown that reasonable steps to prevent polluting activity include the exercise of contractual rights. In this case, a conviction of the LDDC in relation to noise nuisance, was upheld on the basis that LDDC had the contractual means to control and restrain the contractors who were committing the nuisance, but had not made appropriate use of those contractual powers.

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[32] *Schulmans Incorporated Ltd v National Rivers Authority* (Unreported, 3rd December 1991, Queens Bench Division).

[33] *London Borough of Tower Hamlets v London Docklands Development Corporation* (Knightsbridge Crown Court, April 13 1992).

At the other end of the scale, a pollution incident may be the result of a one-off accidental spillage. The necessary permits may have been generally complied with, save for the incident in question, and the landlord's inspections may suggest that the tenant is not carrying on activities in a manner likely to cause damage. The actual pollution incident may be, for example, caused by a breakdown in the tenant's management of his processes, something for which the landlord is unlikely to be held responsible.

In relation to the offence of causing, it should be noted that recent case law suggests a wider interpretation is beginning to prevail. The more established interpretation of causing, provided by earlier cases, and reaffirmed by the WDA case, suggested that landlords would be unlikely to qualify under this trigger term. However, the Yorkshire Water and CPC cases must at least raise serious doubts about this conventional assessment. Where landlords are responsible for maintaining the drainage system (which is often the case before they are adopted by a local authority) and pollution is discharged into a controlled water (via a foul or open sewer), it seems that they could be deemed to have contributed to a chain of events sufficient to constitute causing.

Although causing would seem to be an inappropriate charge where the defendant's role is a completely passive one, (Tromans and Turrall-Clarke, 1994:79), the recent cases suggest that a wide interpretation is being placed upon this phrase. Although Yorkshire Water Services did not physically initiate the pollution in the sewerage system, the mere fact that they had responsibility for maintaining the system, and failed to do so, meant that they could not be considered as passive on-lookers. The prospect for landlord liability under the trigger term of causing can only be increased if such an interpretation is maintained.

Furthermore, on the occasions where landlords are more active, for example, where tenants pay a service charge and the landlord collects their waste, physical and deliberate acts will be taking place. Such an arrangement could make landlords even more susceptible to prosecution under this heading.

4:7.4 INVESTORS' DILEMMA

There is of course a dilemma for property investors wishing to protect themselves as well as their assets from environmental risk. The further a landlord attempts to reduce this risk by introducing clauses within a standard lease which ensure that a tenant complies with relevant environmental legislation, the more the landlord will be exercising some sort of control over the tenant. This will probably result in higher management costs to the landlord due to the increased checks necessary, and may reduce the rental value of the property *vis a vis* an unrestricted use. More importantly, however, it provides additional scope for regulatory authorities to establish that a landlord knowingly permitted a pollution incident to take place where the lease provides the landlord with the "knowledge of" and the "power to prevent" pollution incidents.

4:8 SUMMARY

This Chapter has illustrated that institutional and property investment company portfolios are highly unlikely to be devoid of direct environmental risk. The type of property held by investors will obviously influence their exposure to this type of risk, although the uses to which their properties are put, i.e. tenant activities, are paramount. This has been established by reviewing the planning control system, the pollution control system and relevant case law.

It has also been established that where landlords introduce provisions within leases to reduce this element of environmental risk, they could actually be exposing themselves to possible criminal prosecution under various pieces of environmental legislation. Chapter Six, which presents the results of the empirical work, provides some practical examples of how such liabilities can arise for unsuspecting landlords.

It should also be stressed that the interviews held with environmental lawyers were very supportive of the interpretations the researcher has placed on relevant environmental legislation.

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CHAPTER FIVE

5:0 RESEARCH METHODOLOGY AND EMPIRICAL WORK

In this Chapter the research methodology is explained and evaluated. It highlights how the research aims influenced the methodological approach adopted, why a qualitative approach was selected, and critically examines some of the previous methodologies used in this new, but rapidly evolving, field of property-related environmental research. The details of how this methodological procedure was executed are also presented.

5:1 RESEARCH AIMS

The aims of any study will inevitably structure the nature, design and style of the research instrument. To aid the selection of a methodology Yin (1991) suggests that the first and most important condition for differentiating among various research strategies is to identify the type of research question being asked. The following research aims evolved as the core of the study:

1) to determine whether, and how, the environmental performance of an occupying tenant can impact upon property investment returns;

2) to determine whether, and how, the implementation of an Environmental Management System (EMS) by an occupying tenant can impact upon property investment returns;

3) to determine whether, and under which circumstances, actors in the property investment market concern themselves with the environmental performance of occupying tenants.

Inevitably each of these research aims required the research to find answers to a series of *how, why and what* questions. Firstly, it was necessary to understand how a tenant's poor environmental performance could impact upon the level of return offered by a property investment. Secondly, it was necessary to evaluate how the implementation of an EMS by a tenant could reduce the risks of a tenant's environmental performance impacting upon the property investment returns received by the landlord. Finally, it was necessary to establish under which circumstances the various actors in the property investment market consider it necessary to take into account the environmental performance of tenants in their property investment decisions.

5:2 A QUALITATIVE APPROACH

In order to achieve these diverse research goals it has been necessary to view the topic from the perspective of the interviewees, and to understand how and why they have come to hold particular perspectives. King (1994) has described this process as the aim of qualitative research interviews. Qualitative research is interested in how humans behave under various circumstances and settings, how they use information which is supplied to them, and when, and if, they act on it. If this behaviour is studied in a symbolically reduced fashion - for example, by employing a 'yes' or 'no' questionnaire and statistically testing the data - there is a risk that conclusions may fail to fit reality (Mills, 1959). However, it is not the aim of this thesis to become involved in the continuing debate between qualitative and quantitative research. As Bryman (1988) argues, the decision to adopt a qualitative or quantitative approach should be primarily a practical matter of deciding which approach is more appropriate to the research question. By interviewing actors involved in a certain process, it is possible for researchers to share partially in the understanding and perceptions of others, and to explore how and why they make certain decisions. This is the essence of qualitative research, and this provides the justification for adopting such an approach in the pursuit of the research aims outlined above.

The research area, in addition to being concerned with the answers to questions of a 'how' and 'why' nature, which Berg (1988) considers is more effectively dealt with by the use of qualitative research techniques, is also very original. Such research topics are also said to be suited to the collection of qualitative, attitudinal data, often incorporating a case study approach (Fink & Kosecoff (1985) and King (1994)).

5:2.1 QUALITATIVE RESEARCH INTERVIEWS AND QUESTIONNAIRES

Acknowledging the largely qualitative nature of this research project, directed at obtaining attitudinal data relating to the perceptions of certain actors, it was decided that the most worthwhile instruments available for data collection were interviews and, where necessary, questionnaires. It was intended that each respondent would be interviewed and, to obtain the highest quality data, all interviews would be transcribed. When initial contacts were made with potential respondents, it soon became apparent that some, although unwilling to be interviewed, were prepared to respond through completing a questionnaire. It is, therefore, possible that the quality of the data was marginally compromised, although this is compensated for by adopting the respondent-preferred method. Research which employs data collection devices for which potential respondents have expressed any preference will usually enhance the usefulness, quality and credibility of the results (Fink and Kosecoff, 1985).

Having established that a qualitative research methodology was most suitable, incorporating qualitative interviewing techniques, it was necessary to consider the major types of interviewing structure before it was possible to proceed with the process of data collection. There are at least three major categories of interviews (Denzin, 1978; Babbie, 1983; and Gorden, 1987): these include the standardised (formal) interview, the un-standardised (informal) interview, and the semi-standardised (guided or semi-structured) interview.

The standardised interview uses a formally structured schedule of questions, each interviewee being asked the same questions in the same way. The underlying

rationale for the use of this technique is that the researcher has a clear insight into the things to be uncovered during the interview (Schwartz and Jacobs, 1979). Here the assumption is made that the questions appearing in the interviewing instruments are comprehensive enough to elicit all of the information required by the researcher (Berg, 1988). In other words, the researcher must be sure that by answering the specific questions asked of them, the respondents will pass on all the necessary information to facilitate a rigorous analysis.

The un-standardised interviewing process, in contrast to the rigidity of the preceding method, does not utilise schedules of questions. There are different assumptions made when using this method. Firstly, interviewers make the assumption that they do not know what the necessary questions are, and consequently a full list of questions is not capable of being developed. The interviewers may also assume that the respondents will find different meanings in like-worded questions.

The preferred interview technique for this research was the semi-structured interview, which straddles the two methods outlined above. This type of interview technique required a number of predetermined questions and/or special topics to be developed. These questions were then asked in a systematic and consistent order, but the interviewer was allowed sufficient freedom to digress, indeed this was the key reason this method was adopted, so that the research could probe beyond the immediate answers to the prepared and standardised questions.

The research, therefore, adopted a semi-structured interviewing approach with open-ended questions. These allowed interviewees to describe in detail their approaches to the phenomena being studied. The research method was thus unambiguously concerned with the collection of qualitative data through the medium of semi-structured interviewing. It was considered particularly important to provide respondents with the opportunity for self-expression, given that the full range of possible answers was not known and considering the complexity of many of the issues covered (Shepherd, 1991). This type of approach has been described as being not only appropriate but also sympathetic:

> "Where exploratory work is required before a quantitative study can be carried out. For example, researchers examining the impact of new technology on social relationships in a workplace might use qualitative interviews to identify the range of different types of experience which a subsequent quantitative study should address." (King, 1994:16).

This research has focused on the attitude of environmental auditors, environmental lawyers, and the various actors of the property investment market, towards a relatively novel concept. It has often been claimed that such a qualitative approach will often result in a greater depth of understanding of the research topic under study (Berg, 1988 and Miles and Huberman, 1994). It is argued that the interviews and questionnaire responses provided this understanding, and these have, in turn, indicated avenues which may form the direction of future quantitative studies.

5:2.2 BEHAVIOURAL APPROACHES AND PROPERTY RESEARCH

The behavioural, or attitudinal, approach has been examined in some detail by Gore and Nicholson (1991) in their evaluation of the conceptual models which have been developed to explain the land-development process. They argue that it is an improvement over purely event based sequential models - such as those provided by Cadman and Austin-Crowe (1978), Ratcliffe (1978) and Barrett, *et al* (1978). However, serious criticisms are levelled against the approach in its explanation of the land-development process. These authors argue that the approach is too individualistic, and that it treats the actors under examination as independent and autonomous, " ... with the ability to make decisions and to take action in their own interests, without reference to other actors in the process" (Gore and Nicholson, 1991: 713).

Whilst the research aims of this project are not concerned with providing an explanation of the land development process, they are interested in the relationship which exists between two key actors within this process - the landlord and tenant -

and understanding how environmental risks are altering this relationship. It is, therefore, acknowledged that it is dangerous to rely too extensively on those behavioural approaches which have been described as 'individualist', since they assume that actors are autonomous and that external factors can predominantly be ignored during the observation of actors.

It was therefore, essential to be aware of the actors' behaviour and also the external factors which constrain such behaviour. Such an approach is closely associated with Ball's work (1983; 1985; 1986a; 1986b), where in attempting to understand the provision of buildings, it was crucial to consider both the institutional structures within which the provision took place, and the social agencies engaged in such structures. (For a review of the structure-agency model see Rydin, 1994).

5:2.3 BEHAVIOURAL APPROACHES AND PROPERTY RELATED ENVIRONMENTAL RESEARCH

In the context of the "greening" of the housing market, Rydin (1994) makes clear that the methodologies of the behavioural approach can provide a useful insight into the "greening" process. This work, relating to the residential property market, examined the environmental concerns of house builders, mortgage lenders and estate agents using a postal survey. Such an approach has also been adopted by Parsa (1993). In attempting to assess the impact of environmental issues on commercial property, various actors - investors, developers and occupiers - were asked about their attitude towards certain specified environmental issues.

It is an approach which has been described as applicable to empirical research, often using questionnaire surveys, and interviews to elicit such information on interests, actions and functions (Rydin, 1994). Rydin also considers it probable that this methodological approach will become increasingly utilised by property researchers investigating environmental issues (*ibid*). A recent RICS-funded research project would seem to support this view. It has embraced a behavioural methodological approach and incorporated the qualitative interview technique. This research, into

the "Valuation of Contaminated Land and Property", has been supported by the Environmental Research Programme, and is using a series of interviews to develop best practice guidance notes to aid valuers in this difficult area of professional work (RICS, 1994).

5:2.4 BEHAVIOURAL APPROACHES AND ENVIRONMENTAL RESEARCH

The use of behavioural research approaches has been widely utilised by the "environmental management" research community recently. The use of questionnaires to determine companies' attitudes towards key environmental issues has become particularly popular. Such research includes Hillary (1991), Institute of Directors (1993) and Hillary and Millar (1994). Much of this work has been concerned with determining company awareness of environmental management system standards, such as BS 7750 and EMAS, and whether organisations regard improving their environmental performance to be of importance.

Research undertaken by Spencer-Cooke (1994) explored the impact of corporate environmental disclosure upon company valuation by examining the flow and quality of environmental information between two key actors - chemical companies and financial institutions. The collection of qualitative attitudinal data by the research (incorporating questionnaires and interviews) resulted in valuable insights into financial analysts' uses and perceptions of environmental information.

5:2.5 GROUNDED THEORY

"Generating theory that is 'grounded' in interviews, observations or textual material is one important principle of qualitative research" (Henwood and Pidgeon, 1995:115). This is the ultimate goal of this research project: to build theory through the analysis of qualitative data which can then be applied to the wider property investment market. This seems a logical, achievable and worthwhile aim for this

doctoral thesis. At present, theory is non-existent, and this thesis represents a new domain of enquiry, since it is the first study which specifically examines investors' perceptions towards the environmental risk which is associated with an occupying tenant's environmental performance.

It is important at this stage to indicate what is meant by grounded theory. As originally written the aim of such an approach was to build comprehensive theoretical systems from the data gathered during, for example, the interviewing process (*ibid*). Since this qualitative data had been gathered in the real world, it would then be possible to develop theory from it which could then be tested on the wider area of study, perhaps using quantitative techniques (Strauss and Corbin, 1990). However, as Henwood and Pidgeon (1995) indicate, the use of grounded theory does not have to result in the building of a total theory. For example, they argue that it is a worthy aim of Doctoral Research to identify the relevant features of a corpus of data, and explore more fully the properties of a limited set of categories. This has been considered during the data analysis stage of the research in order to keep the thesis within reasonable limits. It is considered more important to identify relevant key issues for further research, and examine some in more detail to provide guidance for this further research, than to develop a theory which purports to provide all the answers to the major questions of property investment and the environmental issues presently under consideration.

It is also important to reiterate that although the analysis of the results, and the theory which has been subsequently developed, are heavily grounded in the interview data, the research was not conducted without due regard to external factors which may have influenced the attitudes of the interviewees. It was also considered important for the researcher to draw upon professional experience and a wider understanding of the property investment market - gained mainly from academic literature. This is considered by both Strauss and Hughes to be particularly important if the research is to generate new theory from qualitative research (Strauss, 1987) and (Hughes, 1993).

5:3 SUMMARY OF EMPIRICAL WORK

Having described the methodological approach adopted, the details of how this approach was carried out is outlined below. The interviews comprised of three different phases, and related to the research aims stated in section 5:1.

5:3.1 ENVIRONMENTAL PERFORMANCE AND INVESTMENT RETURNS

One of the more obvious ways in which the environmental performance of an occupying tenant can be material to the investment returns earned from a property, is where "direct environmental risks" are associated with its occupation. Direct environmental risk is concerned with a tenant's propensity to cause a pollution/contamination incident on a landlord's property, and is a function of a number of site specific factors, not least of which is the activities which the tenant carries out on site. In order to satisfy the first research aim, therefore, it was necessary to determine whether direct environmental risk is associated with industrial property and, perhaps more importantly, what factors give rise to varying levels of this risk.

Three sets of interviews were undertaken in order to complete this aim. Firstly, tenants were visited in order to elicit information concerning their environmental performance. Secondly, environmental auditors were interviewed to determine their views concerning direct environmental risks in relation to the industrial properties inspected, and industrial property in general. Finally, lawyers practising in the field of environmental law were interviewed to discuss the potential for landlord liability to arise from the type of environmental risks identified by the environmental auditors, and from the risks associated with industrial property in general. The environmental lawyer interviews were particularly useful in understanding the interpretation of relevant environmental legislation considered in Chapter Four. Where these situations develop, i.e. the risks exist, pollution problems occur and the landlord is involved in remediation in some way, there can be little doubt that the environmental performance of the occupying tenant will have impacted upon property investment returns.

5:3.2 ENVIRONMENTAL MANAGEMENT SYSTEMS AND INVESTMENT PERFORMANCE

The second research aim was also subject to empirical work. A major part of the interviews with the environmental auditors and environmental lawyers, consisted of detailed discussions concerning the EMS concept and its ability to reduce levels of environmental risk. If EMSs are able to reduce the prospect of environmental incidents taking place at industrial property, there would be an enhanced opportunity for landlords to enjoy property returns uninterrupted by environmental liabilities associated with tenants' activities.

5:3.3 INVESTORS' VIEWS ON THE ENVIRONMENTAL PERFORMANCE OF TENANTS

Thirdly, interviews were undertaken with property investors to elicit their views concerning the environmental risks associated with industrial property, and, in particular their views on EMSs. This has allowed the research to indicate under which circumstances the various actors in the property investment market are deeming it necessary to take into account the environmental performance of the tenant in their property investment decisions.

5:4 TENANT, ENVIRONMENTAL AUDITOR AND ENVIRONMENTAL LAWYER INTERVIEWS

5:4.1 SAMPLING OF TENANTS TO BE INTERVIEWED

The selection of properties to assess for "direct environmental risk" was made on the basis that the research was interested in "industrial" property. Fundamentally there

was no other requirement than this, and it was decided to interview tenants from two separate industrial estates. Two estates were chosen in order to gain access to a variety of tenants, and different topographical circumstances, which may give rise to different environmental risks as determined in the semi-structured interviews with the environmental auditors. These interviews provided sufficient evidence for the purposes of this research. It was decided that spreading the interviews between two industrial estates would add to the quality of the research since the auditors would be presented with different factors which could then be built into the theory during the analysis of the qualitative data.

Although the two different estates were chosen - which widened the scope of the data collection and made the data more representative - it is not claimed that the tenants interviewed are representative of the wider industrial property investment market. Further, given the time and resource constraints and the number of tenants who agreed to be interviewed, it was decided that it would be possible to investigate nine properties. To claim that such a small sample is in some way representative of the properties which form the industrial property investment market would be erroneous. However, the results of these tenant interviews provided sufficient information for the environmental auditors to make judgements concerning the levels of environmental risk.

It should be emphasised that a representative sample of the industrial property investment market was not required for the research methodology which had been adopted. Given that the empirical work was of a qualitative nature, which included understanding why environmental auditors deemed certain tenants to be environmentally risky, it was envisaged that the theory which developed from the qualitative interviews would be able to apply to the wider investment market. In brief, the semi-structured interviews would be used, in conjunction with other data, to identify the factors which were consistent when properties were deemed to be environmentally risky. This theory, grounded in the qualitative data which had been collected during interviews with environmental auditors, can be used to aid property investors to make informed decisions about levels of "direct" environmental risks in prospective property investments.

Of the nine properties investigated, five were from an estate in Gwent, and four were from an estate in West Glamorgan. Both of the industrial estates were in the ownership of the Welsh Development Agency (WDA). Due to the confidentiality required it is not possible to provide any further indication of the location of the industrial estates. Any further details concerning the two estates may allow third parties to identify tenants that appear in the empirical work which follows. Initial contact with the tenants was made through the WDA, in the form of a letter from the relevant regional surveyor responsible for the industrial estate. These letters outlined the research project and advised each tenant that a researcher would be contacting them in the near future. It was felt that a letter from the tenants' landlords asking for their assistance would yield a more favourable response than a letter from an academic researcher. The tenants on the industrial estates had also been in contact with the WDA previously, and in some instances had met the respective regional surveyor, which also aided the data collection process.

Following the WDA correspondence, the researcher then contacted the tenants by telephone and outlined the research project in more detail. During this telephone conversation the most appropriate member of the tenant's personnel was identified for the interview. Following a series of telephone calls it was established that 11, out of 20 tenants who were originally contacted, were prepared to help in the research project. Of the 11 tenants, two later declined to be interviewed and consequently were not included in the project.

5:4.2 THE TENANT INTERVIEWS

Through the literature review, it had been possible for the researcher to develop a questionnaire which was designed to provide information concerning tenant attitudes towards managing environmental issues, the type of products, processes, wastes and storage which were kept on site, and the legislation which was relevant to each

organisation. The provisional research indicated that these factors were likely to influence the level of environmental risk present at each property.

Once the questionnaire had been initially developed, it was sent out to various academics and practitioners who work in this field and who had agreed to provide comments. Responses were received from all four of the people contacted. Two were from academic institutions, one of which was an environmental law lecturer and the other a lecturer in environmental auditing - this respondent also undertakes environmental auditing consultancy on behalf of her academic institution. The other two respondents included the head of the environmental law unit at a major firm of solicitors in Cardiff, and the (then) Project Manager for one of the leading firms of environmental auditing firms in the country. These comments were incorporated into the questionnaire which was used as the basis for the interviews with the tenants. A complete copy of the questionnaire can be found in Appendix One.

The next stage involved sending the questionnaire to the relevant contact persons which allowed them time to read through it before the interviews. This reduced the time the tenants had to give up in order to help with the research, ensured that the tenants were aware of what the research project entailed before the interview began and also provided the researcher with time to prepare for the interview and gather any relevant information and documentation which would be required.

The interviews with the tenants consisted of approximately one hour-long meetings. In addition, a tour of the property was provided by the relevant contact person, or another appropriate member of staff, and in all but one case the researcher was allowed to take photographs of the sites. The interviews were not tape recorded since it was deemed possible to gather the required information by following quite rigidly to the questionnaire which had been developed. It was also considered that a tape recorder would inhibit the interviewee in what was already a discussion about a sensitive subject area. However, the information was recorded on the questionnaire and typed up as soon after the interview as possible to provide the necessary information for the environmental auditors.

Appendix Two includes the summaries of all the interviews undertaken with the nine tenants. As outlined below, these reports provided the basis for the subsequent environmental auditor interviews.

5:4.2.1 Correspondence with Statutory Regulators

Information was also gathered on the two industrial estates in general, and on the nine tenants in particular, by contacting, corresponding and where necessary interviewing, the relevant statutory regulators. These included: The National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution (HMIP), the statutory water company (Welsh Water) and the Waste Regulatory Authority (WRA).

The NRA were contacted to determine: whether there were any discharge consents into controlled waters from either of the two sites; whether any prosecutions had taken place involving any tenants from the two estates and the NRA; the location of the closest controlled waters to the two sites; and whether any abstraction licences were in close proximity to either of the two sites.

HMIP were contacted to determine whether any of the tenants on either of the estates had registered, applied to be registered, or had been prosecuted under the Integrated Pollution Control provisions of part A of Part 1 of the Environmental Protection Act 1990.

Correspondence was entered into with Welsh Water to determine whether any trade effluent discharge consents into public sewers were in existence at either of the estates. Enquiries were also made relating to any prosecutions, revocations, refusals or conditions relating to trade effluent discharges into public sewers.

The two WRAs were visited and interviewed to determine whether any of the tenants were registered under Part B of Part 1 of the Environmental Protection Act 1990.

The issues surrounding the correct storage and disposal of waste, and statutory nuisances were also discussed in the context of the two industrial estates.
Appendix Three includes extracts and summaries from the correspondence and meetings with the statutory regulators.

Through interviewing the WDA tenants, and consulting the relevant statutory regulators, it was possible to provide certain information for the environmental auditors. This information included the type of activities and processes which were being carried on in the properties occupied by the tenants interviewed, the level of environmental awareness of the different tenants and the licences and permits which were held by the various tenants. The results of this work were subsequently presented to environmental auditors, in the form of an information pack summarising these enquiries, which was sent to the interviewee at least two weeks in advance of their interviews. Such material allowed the auditors to comment on whether there were "direct environmental risks" associated with various tenants' activities.

Appendix Four includes example information packs which were sent to the environmental auditors. These were subsequently used as the basis for the environmental auditor interviews, and the questionnaire responses were used to compile a simple matrix outlining environmentally-risky tenants (see Table 6.1).

5:4.3 SAMPLING OF ENVIRONMENTAL AUDITORS TO BE INTERVIEWED

The literature review and seminars attended by the researcher allowed the identification of many of the leading firms of environmental auditing firms practising in the UK. Through networking during the earlier stages of the research, several environmental auditors had been contacted and the research project discussed.

Respondents were, therefore, selected from a pre-defined population (Fink and Kosecoff, 1985: 53-63), all of whom were practising in the field of environmental auditing and environmental risk appraisal. The relevant companies were contacted and relevant personnel identified. An approach was then made to determine whether they would be prepared to be interviewed by the researcher. The sampling had, therefore, involved identifying appropriately qualified professionals, employed by the leading environmental auditing consultancies in the UK, who were prepared to be interviewed for up to one and a half hours.

The other factor considered in the sampling process was the size of the population to be interviewed. This was determined by the time and resources available to the researcher, and the number of WDA tenants interviewed in the earlier stages of the work. It was decided that six environmental specialists would be required to obtain comments on all nine WDA tenants, (three units received the comments of two environmental auditors each, whilst the other six received the comments of one environmental auditor each). By obtaining two independent views on three of the units, a simple check was in place gauging the consistency of the data being gathered. It also had the advantage of keeping the research within manageable limits since fewer people were required to be interviewed.

5:4.4 THE ENVIRONMENTAL AUDITOR INTERVIEWS

The earlier part of this chapter explained that a semi-structured interview technique was adopted by the research. These interviews lasted between 35 minutes and 1 hour

45 minutes. They were based on the information pack outlined above, tape recorded, subsequently transcribed, and eventually analysed using computer software which has been specifically developed by social scientists to facilitate the analysis of qualitative data (see section 6.5 on the Ethnograph).

Company and Position	**Duration of interview**
Technical Director. Ashdown Environmental.	1 hour 30 minutes
Operations Manager. Gibb Wales.	1 hour 25 minutes
Environmental Auditor. Centre for Hazard and Risk Management Research. University of Loughborough.	1 hour 45 minutes
Environmental Consultant. Aspinwall & Company LTD.	1 hour 35 minutes
Project Manager. Wallace Evans.	1 hour 25 minutes*
EMS Manager. SGS Yarsley ICS LTD.	35 minutes* (conducted over the telephone)
Total Duration of all interviews	**8 hours 15 minutes**

* Interview not tape recorded

Table 5.1: Summary of Environmental Auditor Interviews

When the interviews were completed, the researcher had over 6 hours of tape recorded interviews (this excluded a 35 minute telephone interview, and a 1 hour 25 minute interview with two respondents who declined to tape recorded - both of which were considered useful responses and were, therefore, included in the analysis). Table 5.1 above provides a summary of the interviews held with the environmental auditors.

5:4.5 SAMPLING OF ENVIRONMENTAL LAWYERS TO BE INTERVIEWED

The sampling of environmental lawyers was carried out in a similar fashion to that for the environmental auditors. Respondents were selected from a pre-defined population of environmental lawyers who had spoken at conferences attended by the researcher or who had published widely, or both. Two experts, Luke Bennet, Head of the Environmental Law Unit at Morgan Bruce, Cardiff, and John Garbutt, Partner in the Environmental Law Department at Nicholson, Graham and Jones, London, were interviewed initially. These discussions were used to help revise the original drafts of the environmental lawyer questionnaire.

Having selected a population of highly qualified and widely published lawyers, it was necessary to contact the potential respondents to determine whether they would be willing to be interviewed by the researcher. Fortunately, each person contacted was very interested in the project and agreed to be interviewed. This population consisted of five leading environmental law specialists working in this field, each of whom were interviewed for up to one and a half hours.

5:4.6 THE ENVIRONMENTAL LAWYER INTERVIEWS

These interviews were conducted in a similar fashion to the auditor interviews. The interviewees were sent a questionnaire in advance, the discussions were subsequently tape recorded, transcribed, and once again analysed using the Ethnograph. Appendix Five includes a copy of the questionnaire which formed the basis of the lawyer interviews. Table 5.2 summarises the environmental lawyer interviews.

Company and Position	Interview Duration
Head of Environmental Law Department. Simmons and Simmons.	1 hour 25 minutes
Solicitor. Gouldens.	1 hour 45 minutes
Partner, and head of Environment Department. Nabarro Nathanson.	1 hour
Head of Environmental Law Group. Bristows Cooke & Carpmael.	1 hour 30 minutes
Associate. McKinnell Irvine and Mitchell.	1 hour 20 minutes*
Total Duration of all interviews	**7 hours**

* Interview not tape recorded.

Table 5.2: Summary of Environmental Lawyer Interviews

5:5 PROPERTY INVESTOR INTERVIEWS

The third research aim required the researcher to determine whether, and under which circumstances, certain actors in the property investment market concern themselves with the environmental performance of occupying tenants. It was, therefore, necessary to elicit the views of the major players in the property investment market, i.e. those organisations which are actively involved in the buying and selling of property for investment purposes. The interviewing process concentrated on the property investing institutions and property investment companies, since it is generally accepted that these types of organisation have dominated the property market in the post-war period, and it is by examining their functions and activities that an understanding of the market can be gained (Fraser, 1993: 277).

5:5.1 THE PROPERTY INVESTMENT MARKET

5:5.1.1 The Insurance Companies

These can be divided into two categories, "general" or "long term". General insurance, which includes accident and motor insurance, for example, is normally taken out on an annual basis and is, therefore, essentially short term. The liabilities faced by such insurance companies are of an erratic nature, and their investment strategy has to take account of this. General insurance companies tend to hold a large proportion of their assets in securities which can be easily liquidated, in order to pay out their short term unpredictable claims. Fixed-sum investments, such as interest bearing bonds and gilts, will also be held since these satisfy the fixed (in monetary terms) liabilities of insurance companies.

However, the shareholders' funds, the company's underwriting capital, need to grow at the same rate - or preferably faster - than the rate of inflation and should be invested in equity investments, such as ordinary shares and property. "Property's security and its qualities as a hedge against inflation make it a highly appropriate medium in which to invest a general insurance company's equity base. Its lack of liquidity is relatively unimportant because circumstances would have to be dire indeed to require a general fund to liquidate its property in a hurry" (Fraser, 1993: 287). It is not surprising, therefore, that general insurance companies are very active in the property investment market.

Long-term business is principally life assurance, and involves far more capital than that which is invested in general insurance business. It is more significant in the investment market generally and particularly the property investment market. Due to the liabilities of these funds being longer term and inflation related, their investments also tend to be biased towards the longer term. Therefore, the proportion of equity-type investments - including property - held by long term funds is much greater than for general funds.

5:5.1.2 The Pension Funds

The liability of pension funds is essentially 'real' as opposed to 'monetary', as the pensions are linked to employees' final salaries. Consequently, pension funds invest the majority of their assets in growth investments: at the end of 1990 over three quarters of their assets were invested in growth investments (Fraser, 1993: 290). Property is an attractive investment medium for pension funds, since it is a relatively secure, long-term investment. However, they have a relatively low allocation of funds to this sector, which is probably explained by fund size. Most pension funds are relatively small, whereas property investments are individually large and very expensive. Therefore, the purchase of even one property can take up a large part of the fund's annual investment, and it can be difficult to build up a balanced property portfolio by type and location.

5:5.1.3 The Property Investment Companies

At the end of the 1980s, the total property assets of listed property companies were estimated at £40 billion (Brett, 1990: 243). This compares to the 1990 figure of £42 billion held by the insurance companies (life and general combined) and £22 billion held by pension funds (*ibid*). Since property investment companies are such a major force in the property investment market it was obviously desirable that their representatives too should be interviewed.

5:5.1.4 The Chartered Surveying Firms

The major firms of chartered surveyors act as advisors to property investors, for example, insurance companies, pension funds and property investment companies. This advice, depending on the expertise of the firm involved, includes undertaking valuations of commercial and industrial property on behalf of property investors and banks, and in many instances involves the firm being retained as advisors to major property-owning funds, or they may even manage the funds on behalf of owners.

"From the vast number of transactions passing through their hands they build up a feel for the way the property market and its many sub-markets are moving. This information is one of their most valuable assets, given the lack of a central and visible market for property" (Brett, 1990: 239). Chartered surveyors are, therefore, extremely influential in the property investment market, and it was considered necessary to interview them accordingly.

5:5.1.5 The Banks

The principal way in which the banks become involved in property investment is through providing finance (predominantly short-term) to property investment companies. Traditionally, property companies have sought to retain as narrow an equity base as possible, this maximises earnings and asset growth. This gearing effect obviously allows the smaller equity capital to grow very quickly when used in conjunction with larger amounts of debt capital.

Bank lending has become a popular source of finance to the property investment/development companies for many years. By the early 1990's it stood at around £40 billion (Brett, 1991). Whilst there are other forms of property company finance, such as debentures and raising new equity, the banks are still a major source of finance for these companies. It is also worth noting that whilst much of this finance is short-term (usually funding development work, where properties are sold on completion) "holding" or "investment" loans are now becoming common as well (Brett, 1990: 199).

5:5.2 SAMPLING OF INSURANCE COMPANIES AND PENSION FUNDS

In the same way that the literature review guided the researcher towards a suitable sample population for environmental auditor and environmental lawyer interviews, it also facilitated the selection of financial institutions considered appropriate for interview. All of the institutions contacted were selected on the basis that they have

significant property holdings within their overall investment funds. An advisor to the research, Dr. Ian Scott, was employed by a firm of Chartered Surveyors and was actively involved in offering investment advice to financial institutions. This insight into the practice of institutional, and investment company, property investment facilitated the selection of property investing organisations active in the UK property investment market.

It was then necessary to identify the relevant personnel in each of the organisations identified. Firstly, the Society of Property Researchers List of Members (SPR, 1994) provided a list of contacts who were actively involved in the field of property research. After discussing the aims of the intended semi-structured interviews, a relevant member of the organisation was identified to be interviewed. This was, in all but one of the cases, the original contact obtained from the SPR directory.

Due to the nature of the questions, which related to a variety of different issues, the interviewees were again forwarded a copy of the interview in advance. In many cases input from other colleagues was received prior to the interview, and in some cases information was sent on after the interview had been completed. There were also respondents who were not prepared to be interviewed, and preferred to complete the questionnaire and return it by post.

Tables 5.3 and 5.4 summarise the interviews, and responses received by post, from financial institutions.

Respondent & Institution	**Size of Property Portfolio £ m as at November 1994**	**Interview Duration**
Postel Investment Management LTD. Senior Research Surveyor.	3200	1 hour 20 minutes*
Axa Equity and Law Investment Managers LTD. Property Manager.	900	55 minutes
Legal and General Investment Management LTD. Research Manager.	3000	55 minutes
ESN Pension Management Group LTD. Property Research Director.	565	1 hour*
Prudential Portfolio Managers LTD. Associate Director of Property Investment.	5500	1 hour 10 minutes
Total Duration of all interviews		**5 hours 20 minutes**

* Interviews not tape recorded

Table 5.3: Summary of financial institution interviews

Respondent & Institution	**Size of Property Portfolio £ m as at November 1994**	**Response Format**
The Standard Life Assurance Company. Assistant Property Investment Manager.	2500	Telephone interview lasting 25 minutes
Commercial Union. Deputy Investment Manager.	900	Postal Questionnaire
Norwich Union Investment Management. Development Surveyor.	2500	Postal Questionnaire

Table 5.4: Summary of responses from financial institutions other than by interview

Appendix Six includes a copy of the questionnaire which was used for the interviews with financial institutions, property investment companies and chartered surveying firms.

5:5.3 SAMPLING OF PROPERTY INVESTMENT COMPANIES

The property investment companies were selected in a similar fashion to the other populations. Through the literature review, and the researcher's own knowledge and experience of the property investment market, it was possible to identify major property investment companies. Dr. Ian Scott was again consulted, and a list of property companies produced.

Five[1] of the largest ten property investment companies by market capitalisation were included in the research - three of which were interviewed for a combined period of four hours and 25 minutes. Another criteria by which property companies were selected was their allocation to industrial property. Part of the research was concerned with identifying investors' perceptions towards the "direct" environmental risks of holding particular types of property, and this could only be achieved by receiving responses from companies which had experience of investing in industrial property as well as other property types. Tables 5.5 and 5.6 provide a summary of the interviews held with, and correspondence received from, property investment companies.

[1] British Land responded through a telephone interview held with a Director. Although the comments received aided the researcher to formulate further questions to ask other companies, they did not form part of the analysis.

Company Name & Respondent	**Size of Property Portfolio £ m (November 1994)**	**Interview Duration**
Land Securities plc. Property Director.	5032 (company accounts March 1994)	1 hour 20 minutes
Frogmore Estates plc. Senior Investment Surveyor.	345.5 (company accounts March 1994)	1 hour 5 minutes
MEPC. Valuation Manager.	Circa 2500	1 hour 20 minutes
Slough Estates. Special Projects Manager.	Circa 1500	1 hour 45 minutes
Total Duration of all interviews		**5 hours 30 minutes**

Table 5.5: Summary of property investment company interviews

Company Name & Respondent	**Size of Property Portfolio £ m (November 1994)**	**Response Format**
Brixton Estates plc. Assistant Directors: Acquisitions and Property Management.	800	Postal Questionnaire
A & J Mucklow (Investments Limited). Development Director.	Circa 200	Postal Questionnaire
PSIT Properties Ltd. Estates Surveyor.	Circa 275	Postal Questionnaire
Industrial Ownership plc. Property Manager	70	Postal Questionnaire

Table 5.6: Summary of the response of the property investment companies other than by interview

5:5.4 SAMPLING OF CHARTERED SURVEYING FIRMS

As with the other actors in the property investment market, an uncomplicated method was adopted. Surveying firms were selected on the basis that they were actively offering valuation and investment advice to the investing institutions and companies.

Six of the eleven firms who responded were in the top ten of the best surveying firms according to the 1994 Chartered Surveyor Survey (Property Week, 1994). This ensured the researcher had access to some of the major property investment advisors in the UK.

Table 5.7 provides a summary of the interviews held with firms of chartered surveyors, Table 5.8 represents responses other than by interview.

Name of Firm and Respondent	**Interview Duration**
Montagu Evans. Valuation Partner.	1 hour 25 minutes
Chesterton. Head of Investment Portfolio Management.	1 hour 35 minutes
Healey and Baker. Investment Partner.	1 hour 15 minutes
Erdman Lewis Ltd. Director Fund Management Department.	1 hour 10 minutes
Hillier Parker. Surveyor in Fund Management Department.	1 hour
Savills. Director Fund Management Department.	1 hour 20 minutes
Jones Lang Wootton. Investment Partner	1 hour 20 minutes
Total Duration of all Interviews	**9 hours 5 minutes**

Table 5.7: Summary of Chartered Surveying Firm Interviews

Name of Firm and Respondent	**Response Format**
Richard Ellis. Partner - Portfolio Investment.	Postal Questionnaire
King Sturge and Co. Asset Manager.	Postal Questionnaire

Table 5.8: Summary of Chartered Surveying Firm responses other than by interview

5:5.5 SAMPLING OF BANKS

Since banks can have a significant influence on long term property investment decisions made by property investment companies, it was necessary to determine their views. For example, to what extent do banks, when forwarding money for property investment (and principally industrial type property investment), concern themselves with environmental issues? More specifically, it was necessary to establish whether banks concern themselves with the environmental performance of occupying tenants when making industrial property investment loans to property investment companies.

Again, the sampling technique adopted involved holding informal discussions with experts in the subject area to identify which banks were actively involved in providing finance to property investment companies. Dr. Ian Scott was also consulted and a list of banks thought appropriate to approach was compiled. Tables 5.9 and 5.10 provide a summary of the bank responses - by interview and by correspondence. The questionnaire which formed the basis of the interviews with the banks was very similar to that used for other property investors. The bank questionnaire can be found in Appendix Seven.

Name of Bank and Respondent	**Outstanding Loans to Property Investment Companies £ m.**	**Interview Duration**
Barclays Bank Plc. Environmental Risk Management Unit.	Confidential.	1 hour 10 minutes
The Hong Kong and Shanghai Banking Corporation Ltd. Head of Property Finance.	600	1 hour
Samuel Montagu & Co Ltd. Property Finance Department.	100	1 hour 10 minutes
Bank Austria. Head of Commercial Banking.	Confidential	1 hour
Total Duration of all Interviews		**4 hours 20 minutes**

Table 5.9: Summary of Bank Interviews

Name of Bank and Respondent	Outstanding Loans to Property Investment Companies £ m.	Response Format
Fennoscandia Bank Ltd. Assistant Manager.	Confidential	Postal Questionnaire
National Westminster. Project Manager.	Confidential	Postal Questionnaire
The United Bank of Kuwait. Duputy Manager Commercial Division..	225	Postal Questionnaire
Charterhouse Bank Ltd. Manager - Property Lending.	Confidential	Postal Questionnaire
Westdeutsche Landesbank. Director - UK Real Estate.	180	Postal Questionnaire
Hypobank. Head of Valuations.	1000	Postal Questionnaire

Table 5.10: Summary of bank responses other than by interview

5.6 SUMMARY

This Chapter has presented the methodological approach for the empirical work which has been adopted by this research. It has argued that a qualitative methodology was best suited to the research aims and that semi-structured interviews were the most appropriate data collection tool. It has also been demonstrated that previous environment related research has adopted similar methodological approaches.

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CHAPTER SIX

6:0 RESULTS OF EMPIRICAL WORK

The Chapter provides analysis of the results of the empirical work. Firstly, three of the nine tenants are examined in detail. It is not possible to provide a detailed analysis of all of the tenants within this thesis due to the large amount of space which would be required. Alternatively the summary report provided on each tenant can be found in Appendix Two and allows the reader to appreciate the type of uses which these tenants were engaged in. Table 6.1 also provides a summary of the environmental risk relating to all of the tenants interviewed. The three tenants that are examined in detail within this Chapter have been selected because they clearly illustrate how a tenant's environmental performance can impact upon property investment returns. It is not claimed that these tenants are representative of typical industrial tenants occupying institutional property. They do, however, provide a good understanding of how environmental problems can stem from an occupying tenant's activities. Secondly, the work undertaken using the Ethnograph is presented. This software package facilitated the analysis of 40 hours of transcribed interviews, and the results illustrate those characteristics which are common to environmental risky tenants; whether the adoption of an EMS by a tenant would reduce these risks; and, whether and under which circumstances property investors are beginning to be concerned about these issues.

The responses from all the interviewees were received on the basis that complete confidentiality would be guaranteed. Therefore, where quotes are used they are only accredited by using a numbering/lettering system allowing the reader to find the correct interview in Volume II of this thesis.

6:1 TENANT INTERVIEWS

The tenant interviews are broken down into two parts. Firstly, the environmental risks associated with each unit are highlighted and, secondly, the potential impact that such risks can have upon the property investor's return are discussed.

6:1.1. UNIT A INDUSTRIAL ESTATE ONE

This unit was situated on industrial estate one, which is located in the county of Gwent, South Wales. The estate was constructed in two phases between 1980 and 1991 and has planning permission for B1, B2 and B8 uses.

The unit was occupied by a company manufacturing gift wrapping paper, and falls within use class B2 of the UCO. The unit comprised of 3,850 m^2. There were many different chemicals and dyes used in the printing process, and the tenant's air emissions were regulated by Part B of Part 1 of the Environmental Protection Act 1990.

6:1.2 ENVIRONMENTAL RISKS

Two environmental auditors were questioned about this unit, and they highlighted very similar issues where they thought it was possible that the tenant's actions could lead to environmental damage.

The main concerns centred around the storage of chemicals on the site in a manner which was likely to result in environmental damage, the possibility that the tenant was discharging trade effluent to the public sewer without a trade effluent discharge consent, and the possibility that the tenant was incorrectly keeping and disposing of waste. It is likely that the incorrect storage of chemicals poses the most serious risk to both the tenant and the landlord. The auditors considered that this could be a

possible source of land contamination and water pollution, and the photographic evidence suggested that some contamination may have already occurred.

6:1.2.1 Water Industry Act 1991

Under s. 118 of the WIA, a discharge of trade effluent into public sewers must be with the consent of the relevant sewerage undertaker. It is a criminal offence under ss. 118 and 121 to discharge trade effluent into a public sewer without the required consent, and can result in the imposition of a fine of £2,000 in the Magistrate's Court or an unlimited fine in the Crown Court. The occupier of the premises from which the unauthorised discharge was made will be liable for any fine.

The type of manufacturing process which is carried out at the premises usually results in effluent being produced as a by-product. The environmental auditors seemed to share this view with one remarking that,

> "You've definitely got the possibility of water pollution, now that could either be an 'out of spec' trade effluent because I am convinced that they are putting trade effluent to drain without any form of consent. So they could be breaching the Water Industry Act the purpose of which is not to put anything to drain that may cause damage" (Anon Auditor 4, 1994: 44).

> The reader is referred to Section 6.5 for a full explanation of how the complete interview transcriptions can be found in the second volume of this thesis.

It is possible that s. 111 of the WIA is not being complied with since persons may be allowing substances to enter the public sewer that could cause damage to it. The statutory undertaker may decide to prosecute under this heading where the discharge is not frequent but nonetheless causes damage. This could occur when the tenant cleans down the machines and mixes new inks. One of the auditors expressed the

view that s/he would be very surprised if there were no discharges whatsoever (Anon Auditor 6, 1994: 73).

6:1.2.2 Water Resources Act 1991

The storage of chemicals by the tenant was also a cause of concern to the auditors. This is potentially a far more serious environmental risk to the landlord because not only are the statutory fines higher, but statutory clean up could also be involved, and legislation relating to the offence is far more likely to result in the direct prosecution of landlords.

The chemical store did not have any containment around it, this would allow any spillages, or slow leakages, to escape. It could be that such storage is already allowing chemicals to seep into the ground, possibly leading to the contamination of land or the contamination of an underground watercourse (Anon Auditor 4, 1994: 44). However, of even greater concern was the fact that the store was adjacent to a gully, which led to an open water sewer, which in turn discharged into one of the three nearby controlled waters - identified through correspondence with the NRA.

A meeting with Howard Evans, who has overall responsibility for drainage matters on WDA estates, outlined the drainage system which was in operation at the two industrial estates. As on most industrial estates, there are two separate drainage systems, whereby the public (foul) sewer will accept the trade effluent and the sewerage from premises, and the open sewer will accept the storm water or rain water run-off from a site. The public sewer leads to the water treatment works, before ultimately discharging into a controlled water after cleansing. The open sewers lead directly to a controlled water from the site, with the liquid receiving minimal, and often no treatment, before being discharged.

There are practical reasons for the dual drainage system, which relate to the inability of the public system to cope with the increased water levels during particularly wet

periods. Where contaminants escape via an open drainage system there is obviously greater risk that environmental damage will result since pollutants will enter the controlled waters without receiving treatment. It is an offence under s. 85 of the WRA to "cause" or "knowingly permit" pollution to enter a controlled water otherwise than in accordance with a discharge consent issued by the NRA.

It was the view of the environmental auditors that this situation could occur at Unit A. Plates 6.1 & 6.2 illustrate the potential risk. The drums, containing chemicals used in the regulated printing process, are stored directly adjacent to one of the gullies of the open water drainage system, which subsequently leads to the controlled water. The auditors identified this as a high risk, with one remarking that,

> " ... there is just no where worse to store them! Store them somewhere but not on top of a drain, that is crazy" (Anon Auditor 6, 1994: 74).

Section 161 of the WRA contains powers which allow the NRA to prevent, remedy and mitigate pollution. Where it appears, in their opinion, that poisonous, noxious or polluting matter or any solid waste matter is:

a) likely to enter any controlled waters; or
b) likely to be present in any controlled waters; or
c) likely to have been present in any controlled waters[1],

the NRA can carry out any necessary works and recover the costs from the party responsible[2]. As the environmental auditors have outlined above, it is possible that the incompetent storage of chemicals outside unit A may result in polluting matter

[1] It should be remembered that the definition of 'controlled waters' includes surface water and groundwater.

[2] The NRA have recently proposed to amend this section of the WRA 1991 to enable it to require the person (s) who caused or knowingly permitted the pollution to clean up the contamination themselves.

Plates 6.1 & 6.2

Unit A Industrial Estate One

entering a controlled water. The NRA may, therefore, decide it necessary to carry out works to prevent this happening, and reclaim the costs from the responsible party.

Alternatively, if polluting matter had already entered a controlled water as a result of the storage of chemicals in such a fashion, the NRA could undertake remediation and mitigation works. Once again, these costs could also be reclaimed from the responsible party.

6:1.2.3 Environmental Protection Act 1990

a) Waste Management

Under section 33 of the EPA it is an offence to:-

a) deposit Directive Waste[3] in or on land unless in accordance with the Waste Management Licence;
b) undertake disposal or recovery operations of Directive Waste, again unless it is in accordance with the Waste Management Licence;
c) **knowingly cause** or **knowingly permit** either of the above (emphasis added);
d) treat, keep or dispose of Directive Waste in a manner likely to cause pollution of the environment or harm to human health.

The storage of chemicals on site, the potential trade effluent discharge, and the poor storage of waste generally, led the auditors to conclude that the tenant could be transgressing this piece of legislation. It certainly seems likely that if the drums outside the premises contain waste then they are being "kept in a manner likely to cause pollution of the environment or harm to human health".

[3] Directive Waste is defined by the Waste Management Licensing Regulations 1994. SI 1994 No. 1056.

The seemingly low level of awareness relating to waste disposal in general also means that the tenant is potentially in breach of s. 34 of the EPA. This section places producers of waste under a duty to take reasonable care as to how others in the waste chain deal with their waste.

The tenant has a duty of care to:

a) prevent another person committing a section 33 (1) offence; or
b) prevent the escape of the waste from their control; or
c) ensure that waste is only transferred to an authorised person and that an appropriate written description and Transfer Note is prepared and exchanged.

One interviewee summarised the tenant's waste management procedures as follows;

> "OK, if you count their trade effluent as waste then clearly there are possibilities there for incorrect waste disposal. I think it is just the general poor storage conditions, the potential for mixing of incompatible waste, wrong spec waste going off site, and something that should be 'special' waste and is not notified as 'special'. From the look of it, there is a potential for the workforce to put the wrong waste in the wrong containers. The containers are not lidded. The paper could be blowing around all over the place. The stacking of the grey bins to that height is awfully unsafe, any forklift truck driver going to pick that up will have a lot of problems.
>
> It is definitely the case that they are storing and disposing of waste incorrectly" (Anon Auditor 4, 1994: 45-46).

b) Statutory Nuisance Provisions for Contaminated Land

Part II of the Environment Bill contains the latest Government proposals relating to contaminated land. It intends to introduce a specific statutory framework for identifying and dealing with contaminated land. This framework provides that the

existence of contaminated land[4] will become a statutory nuisance, and, since local authorities are under a duty to cause their areas to be inspected from time to time to detect statutory nuisances, a specific legal framework will be established to deal with the issue. Once a local authority identifies a site which is "contaminated", and therefore, a statutory nuisance, it can serve a remediation notice on the appropriate person specifying the remediation which must be carried out.

Therefore, the threat of land contamination occurring through the unsatisfactory nature of the chemical store should be of interest to the tenant and the landlord. If this occurred and posed a threat to the groundwater a remediation notice would be served by the local authority requiring appropriate clean up measures. Plate 6.3 indicates that some small scale land contamination may have already occurred at the site.

Plate 6.3

Unit A Industrial Estate One

[4] Section 78A (2) of the EPA defines contaminated land as any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that harm or pollution of controlled waters is being, or is likely to be, caused.

6:1.2.4 Strength of tenant covenant

Having established that the tenant was transgressing environmental legislation, and that liabilities could follow, it was necessary to investigate the tenant's ability to pay for any penalties that may be forthcoming. SYBERR (System Based Environmental Risk Rating) attempts to take account of both a company's financial standing, and its potential to become liable to clean up costs. The researcher had developed contacts with the managing director of Environmental Auditors, the company responsible for providing the environmental expertise for the system. It was agreed that Environmental Auditors would assess the nine tenants using SYBERR in order to determine the level of environmental risk attached to the tenant uses as per the Standard Industrial Classification. The industrial classification code of US SIC code of 2621 (Paper Mills) was used which in turn produced a SYBERR rating of D. This rating represents a significant level of environmental risk.

Unfortunately, the credit rating company were unable to locate the tenant on their database, and so financial accounts were not available at the time the assessment was made. The financial status of this tenant would have been particularly useful given the significant levels of environmental risk that both the SYBERR system, and the environmental auditors, suggest were present. If such risks were to be accompanied by a weak covenant, the prospect of the landlord's investment returns being adversely effected could be very real.

6:1.3 POTENTIAL IMPACT ON PROPERTY INVESTMENT RETURNS

It is difficult to judge the impact of fines, disruption to business practices, and loss of goodwill, that could stem from the tenant transgressing environmental legislation. It seems reasonable that a tenant transgressing legislation may face the prospect of financial deterioration. Financial deterioration of a tenant is a well-established component of property investment risk, and it is recognised that it can impact on property investment returns (McCausland and Palmer, 1994, and Baum and Crosby, 1995).

Although investment returns can be affected by the deterioration in a tenant's covenant, brought about by non-compliance with environmental legislation, the landlord can also become directly liable under environmental legislation.

6:1.3.1 Water Industry Act 1991

The offence under s 111 of the WIA can result in a fine not exceeding £5,000 (plus a daily default fine not exceeding £50). This may not appear too stringent but when added to the management time and resources, and the potential cost of new equipment which the tenant may have to install in order to comply, it is likely to interrupt the normal business activities of the tenant. Transgressions of ss. 118 and 121 can result in the imposition of a fine of £20,000 in the Magistrate's Court or an unlimited fine in the Crown Court. The occupier of the premises from which the unauthorised discharge is made will be liable for any fine.

The issues raised under this heading are also dealt with under section 6.3.3.3 in relation to unit C. Briefly, however, there is the prospect for landlord liability where s. 111 of the WIA is contravened, i.e. the discharging into a public sewer any materials which are likely to cause harm to the sewer. However, it is unlikely that the landlord would be held liable for any damage caused from this source, since the discharge of such materials into a public sewer may be impossible to detect by the landlord's usual inspections. It is, therefore, unlikely that a reasonable landlord could be said to have had knowledge of such activities.

6:1.3.2 Water Resources Act 1991

A comprehensive interpretation of the statutory trigger terms found within the WRA was provided in Chapter Four. However, it is necessary to discuss the issues again briefly in relation to unit A. It is an offence under section 85 of the WRA to "cause" or "knowingly permit" any poisonous, noxious or polluting matters or any solid waste matters to enter any controlled waters other than in accordance with a

discharge consent. A person successfully prosecuted will be liable on summary conviction to a maximum of six months imprisonment or a fine not exceeding £20,000 or, on conviction on indictment, to imprisonment for up to two years or an unlimited fine or both.

The expanding body of case law relating to "causing" or "knowingly permitting" suggests that under certain circumstances the landlord could come within these statutory trigger terms. As discussed in Chapter Four, the lease and the nature of the pollution incident, will be very important factors governing whether landlord liability results from a pollution incident.

The WDA, like many landlords, has become aware of potential problems in this area and they have updated their leases accordingly by requiring their tenants to sign leases which include the following tenant covenants:

> "Not to discharge cause or permit to be discharged into the drains, sewers and pipes serving the demised premises:-
>
> 1. Any oil or grease or any deleterious objectionable dangerous poisonous or explosive matter or substances and to take all measures to ensure that effluent discharged into the drains sewers or pipes will not be corrosive or otherwise harmful to them or to cause obstruction or deposit in them or
>
> 2. Any fluid of a poisonous or noxious nature or of a kind calculated to or that does in fact destroy sicken or injure the fish or contaminate or pollute the water of any stream or river and not to do anything that causes the waters of any stream or river to be polluted or the composition of them to be so changed as to render the landlord liable to any action or proceedings by any person or authority" (WDA lease, dated 1993).

Such tenant covenants clearly prohibit the tenant from contravening s. 85 of the WRA and provides the landlord with the contractual power to prevent a tenant from

polluting the nearby watercourses. The tenant also covenants to allow the landlord the usual inspection rights associated with a commercial lease, whereby the landlord can determine whether the tenant is complying with the covenants.

Paradoxically, the tenant's covenants, which are designed to reduce the landlord's potential exposure to environmental liabilities, also provide the landlord with the two elements which are required for a knowingly permitting offence under s. 85, i.e. "knowledge of" and the "power to prevent".

Whether a court would find a landlord guilty of knowingly permitting a pollution offence would depend on what can reasonably be expected of a landlord in the circumstances. The Schulmans case[5] established that actual knowledge of the offence is not necessary, only that the defendant *should have* had knowledge. The court could ask: is it reasonable to expect a landlord to be aware that the external storage of 40 gallon drums of raw material and waste, in an insecure and unbunded manner, directly above a surface water drain, could lead to the pollution of a controlled water? If the answer is yes, then the landlord is potentially liable to criminal prosecution, under s. 85 of the WRA for knowingly permitting pollution to enter controlled water.

The Yorkshire Water Services case[6] must also increase the potential for landlords to become liable to the charge of "causing" a pollution incident. Where the drains have not been adopted by the local authority and they carry pollution into a watercourse, as in this case, the WDA must be potentially liable (See Chapter Four for a comprehensive discussion of this issue).

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[5] *Schulmans Incorporated Ltd.* V. National Rivers Authority (Queens Bench Division, unreported, December 3, 1991). The case is discussed more fully in chapter four.

[6] *National Rivers Authority v Yorkshire Water Services Limited* 17 November 1994 The Times 24 November 1994. The case was discussed more fully in Chapter Four.

Section 161 of the WRA allows the NRA to prevent, remedy and mitigate pollution, where it appears that any poisonous, noxious or polluting matter or any solid waste matter is likely to enter, has entered, or is likely to have been present, in a controlled water. The potential problem for the landlord lies in the wording of subsection (3) which provides that the NRA may recover expenses reasonably incurred in carrying out such work from any person who:

> "a) caused or knowingly permitted the matter in question to be present at the place from which it is likely, in the opinion of the Authority, to enter any controlled waters; or
> b) caused or knowingly permitted the matter in question to be present in any controlled water".

The comments made above relating to s. 85 are relevant here. The term "knowingly permitting" could quite easily encompass the landlord, and as such the powers provided by this section

> "present a potentially heavy threat to the owner or occupier of contaminated land: liability is effectively strict and may operate retrospectively" (Tromans and Turrall-Clarke, 1994: 82).

Where the landlord is held to be "causing" or "knowingly permitting" under this section of the WRA, it could obviously face very high clean up costs. It is interesting to note that Eastern Counties Leather, the polluters in the Cambridge Water Company Case[7], are currently involved in a water treatment strategy - continuously monitored by the NRA - to contain pollution and treat groundwater at their site. Such treatment is notoriously expensive, and it is thought that the powers of s. 161 were used by the NRA to negotiate, and encourage, Eastern Counties to cooperate. Therefore, although Eastern Counties Leather were not held responsible, in civil law, for the losses suffered by Cambridge Water, they are nevertheless having to spend

[7] *Cambridge Water Company* v *Eastern Counties Leather* [1994] 2 W. L. R. 53. This case is discussed more fully in chapter four.

large amounts of money to prevent the pollution from causing any more damage to controlled waters.

6:1.3.3 Environmental Protection Act 1990

a) Waste Management

The penalties for committing any offences under s. 33 of the EPA are six months imprisonment plus a fine of up to £20,000 where the case is dealt with by magistrates or, in more serious cases, up to two years imprisonment plus an unlimited fine. Again, if the tenant were to face such financial penalties, it could cause financial hardship and impact upon the income security offered by a property investment.

However, as Smithers (1994: 129) has made clear, property investors need to be aware that:

> " ... a landlord, who knows that his tenant is in breach of section 33, may find himself equally liable unless he takes appropriate action to force the tenant to comply with the terms of his lease (assuming, of course, that the lease has been well drafted in the first place and contains the usual covenant requiring compliance with statutory obligations)".

Section 34 (b) also imposes a duty upon tenants to prevent the escape of waste from their control. Failure to comply with the duty of care can result in a fine not exceeding £5,000. Where a landlord provides for or controls a tenant's waste collection/disposal (perhaps as part of a scheme covering an industrial estate), it must ensure that it complies with the duty of care in doing so (Turner *et al*, 1994). This is not the situation in this instance, and it therefore seems unlikely that the landlord could be held liable for any failure in the duty of care.

6:1.3.4 Statutory Nuisance Provisions for Contaminated Land

The potential for contaminated land to impact upon the landlord's investment returns is considered in relation to unit C in section 6:3.3.1.

6:2.1 UNIT B INDUSTRIAL ESTATE TWO

This Industrial Estate is situated in West Glamorgan, South Wales. Between 1983 and 1992, 35 factory units were erected during nine phases of development. In respect of these phases, planning consents exist for B1, B2 and B8 uses.

There are a wide variety of tenants occupying units on this industrial estate, in terms of uses being carried on, size of tenant organisations, type and size of processes carried on, type and amount of waste produced and levels of environmental awareness displayed by tenants. These factors, alongside others, are important when considering levels of environmental risk.

Unit B is occupied by a biological products manufacturer. As can be seen from plate 6.4 it is a typical industrial unit of around 1 000 m^2 and in planning terms falls within the B1 use class. During the interview with the managing director of this company, the researcher was informed that Welsh Water had contacted them recently concerning the corrosion of a ladder (which is located in a nearby manhole and used to gain access to the public sewer). The managing director had informed the researcher that the company did not require and, therefore, did not have a trade effluent discharge consent. However, through correspondence with Welsh Water it emerged that the tenant has a trade effluent discharge consent for its freeze drying and fermentation processes. This allows it to discharge a trade effluent into the public sewer.

Plate 6.4

Unit B Industrial Estate Two

6:2.2 ENVIRONMENTAL RISKS

6:2.2.1 Water Industry Act 1991

Under Section 118 of the WIA a company wishing to discharge trade effluent into a public sewer must apply in writing to the relevant sewerage undertaker, in this case Welsh Water. Trade effluent is defined in s. 141 of the WIA as any liquid produced in the course of a trade or industry carried on at trade premises. Any consent which is subsequently granted by the undertaker may be subject to certain conditions, as per s. 121 of the WIA, and it is an offence under this section to transgress any conditions attached to a discharge consent.

From the environmental auditor interviews, there must be some concern relating to the legality of unit B's trade effluent discharge. The fact that that the managing director was actually unaware that his company had a consent - suggesting low levels of environmental awareness - was considered to be one of the reasons for this.

> "There must be some concern over the trade effluent discharge consent to the public sewer, this is not least because the MD is unaware of it. However, if the computer print out from Welsh Water is studied, it is obvious that the discharge which was measured was actually over the deemed limits. The oil and grease levels are far higher than they should be (over ten times higher). It is thought that the tenant (or possibly the WDA in the light of the Taylor Woodrow case[8]) will receive a warning from Welsh Water quite soon concerning this breach of consent.
>
> The sodium lactate discharge may be a possible source of these high oil and grease readings. The fact that the discharge has a high BOD (Biological Oxygen Demand) poses its own risks. In the event of a spillage, it could escape to the open sewer. This could result in a fish kill (if it reaches a controlled water with fish in it) which has been the source of actions by the NRA in the past. If substantial enough it could also do damage to the public sewer treatment works which would obviously result in action by Welsh Water" (Anon Auditor 1, 1994: 2).

The second auditor interviewed in relation to this unit held a similar opinion and thought pollution could be occurring already, and that it would only be a matter of time before Welsh Water caught up with the tenant and began prosecution proceedings (Anon Auditor 5, 1994: 59).

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[8] *Taylor Woodrow Property Management Ltd v National Rivers Authority*, The Times, July 14th 1994. The case was discussed in Chapter Four.

The tenant and environmental auditor interviews in respect of unit B have provided information which suggests the company could be discharging trade effluent into the public sewer contrary to its consent. The company are, therefore, potentially liable to a criminal prosecution, a fine, and the prospect of business activities being disrupted by the prosecution proceedings and ensuring the transgression does not occur again.

6:2.2.2 Water Resources Act 1991

If a spillage was to occur and the effluent entered the open sewer, there would be more risk of environmental damage occurring, and a prosecution following. It is an offence under s. 85 of the WRA to "cause" or "knowingly permit" pollution to enter a controlled water otherwise than in accordance with a discharge consent issued by the NRA.

Under s. 161 of the WRA the NRA have the power to prevent, remedy and mitigate pollution. If a spillage from the effluent was to enter the nearby controlled water, the NRA could carry out any necessary works and recover the costs from the responsible party.

6:2.2.3 Strength of Tenant Covenant

As discussed above, in section 6:1.2.4, where there are potential environmental liabilities for tenants, it is important to consider their financial standing in the context of these potential liabilities. Unit B was assessed under the SYBERR system and received a rating of C, which represents a greater than average level of environmental risk. The latest available financial accounts, at the time the assessment was made, shows that the tenant made an operating loss of £244,138 for the financial year ending April 1994.

6:2.3 POTENTIAL IMPACT ON PROPERTY INVESTMENT RETURNS

It is has been possible to determine from the tenant interview, environmental auditor interview, and information supplied by SYBERR, that this tenant has the potential to cause a pollution incident. It is possible that action may be taken by the relevant statutory regulators, namely Welsh Water and the NRA.

Given the financial information from the company accounts, such developments are likely to lead to a deterioration in the tenant's covenant. The tenant's ability to continue to pay a rent to a landlord must be undermined where problems relating to a discharge consent exist - which is necessary for the company to continue its operations. Potential purchasers, if they have carried out their checks correctly, will be aware of this situation and may be reluctant to continue with the purchase, or may at least use it to negotiate a lower price to reflect the higher risk. (The Property Investor Interviews indicated that investors are becoming concerned with this risk, see section 6:7).

It should also be remembered that the landlord could become directly liable for environmental fines and clean-up costs. This could arise during the term, if the tenant defaulted or upon the reversion to the landlord. Chapter Four concentrated on the prospect of landlord liability under these circumstances. Unit A also examined the issue in some detail.

6:3.1 UNIT C INDUSTRIAL ESTATE TWO

Unit C was located on industrial estate two and was used by a tenant manufacturing oil field equipment. The main manufacturing/engineering process which is carried out is the cutting of metal to certain sizes, and involves turning sections of metal in order to shape them. The use falls within B2, or possibly B1, of the UCO and the unit is 2,500 m^2 in size.

6:3.2 ENVIRONMENTAL RISKS

The concerns of the environmental auditors at this site related to the possibility of contaminated land, both inside and outside the premises; the probability that pollution of a nearby watercourse was currently occurring; and the tenant's poor waste management procedures.

6:3.2.1 Environmental Protection Act 1990

a) Statutory Nuisance Provisions for Contaminated Land

The machine-turning of metals during the manufacturing process included the use of an oil-based coolant to prevent over-heating. This was subsequently deposited in a continuous fine spray onto the concrete floor. This process has the potential to cause contamination of land since,

> "Concrete is permeable and porous to oil and oil will seep through concrete, so if there is significant spillage on the concrete floor over a period of time, you will have contamination of the land underneath" (Anon Auditor 3, 1994: 25).

Concern was also expressed about the external storage of waste and oil without any containment (see plate 6.5). Both auditors were concerned that the tenant's storage of waste could lead to land contamination (Anon Auditor 3, 1994: 25-26 and Anon Auditor 1, 1994: 4).

The legislation concerning contaminated land has been the subject of much debate over the last few years, and at the time of writing the Government has recently published the Environment Bill containing its latest proposals for dealing with the issue. This reaffirmed the Government's long standing commitment to a "suitable

Plate 6.5

Unit C Industrial Estate Two

for use" approach, under which contamination is generally dealt with as land comes up for redevelopment, and the clean-up standard is dictated by the proposed end-use.

Provided any contamination that did occur remained stationary, i.e. it did not migrate to another site or contaminate a watercourse, it is unlikely that small scale contamination would significantly affect the value of this site. Estate Two is zoned for industrial use in the local plan, and it is difficult to envisage it being used for anything else in the future. An industrial use is one of the most tolerant land uses of contamination, and so clean-up costs based on the "suitable for use" approach may be very small, even negligible. The land may not need treatment at all if it can be covered over and used as car parking, for example.

Alternatively, if the contamination on the site caused, or was likely to cause, harm to watercourses or other land or property, the local authority would be under a statutory duty to serve a remediation notice on the "appropriate person".

b) Waste Management

It is probable that the inadequate storage of waste in the skip at this unit is contrary to s. 33 of the EPA, since it is an offence to keep waste in a manner which is likely to cause pollution of the environment.

> "The waste (liquid) must be a major concern at this site. The photograph of the outside of the premises is quite worrying. It clearly shows that the swarf cuttings are draining off excess fluid in storage in the skip. It should also be remembered that the photograph probably shows the situation in the best light. For example, if it was raining, as opposed to a dry day when the photo was taken, it would probably be the case that the waste liquid would be running far quicker therefore creating a higher risk" (Anon Auditor 1, 1994: 4).

6:3.2.2 Water Resources Act 1991

The second main area of concern highlighted by the environmental auditors relates to water pollution. Plates 6.6 and 6.7 illustrate the potential problem, which has already been outlined above in relation to waste management. The shaping of metal during the manufacturing process produces swarf cuttings which are covered in an oil-based liquid (the liquid being used to keep the metals cool). The cuttings are deposited into a skip in preparation for disposal. The oil then drains to the bottom of the skip and along the hard standing before entering a drainage gully leading directly to a nearby brook, the closest controlled water.

Plates 6.6 and 6.7

Unit C Industrial Estate Two

This situation led one auditor to remark that

> " ... based on the information as presented, I think it is more than potential for contamination from the skip. I think it is actually happening from what I can see of it" (Anon Auditor 3, 1994: 26).

The risk of this type of pollution causing environmental damage and resulting in prosecution is greatly increased where the discharge is to open sewer, leading directly to a controlled water. The excess oil drains off through surface drainage channels via the storm sewers before being transferred along the main drainage channel to the nearby brook.

It is possible, therefore, that s. 85 of the WRA is currently being transgressed, i.e. pollution is entering a controlled water otherwise than in accordance with a discharge consent issued by the NRA. The powers afforded by s. 161 of the WRA may also be relevant since they allow the NRA to prevent, remedy or mitigate any pollution that may be occurring.

6:3.2.3 Water Industry Act 1991

One auditor remarked that the tenant was likely to require a trade effluent discharge consent in respect of solvent use during its product quality checks. The low level of awareness displayed by the tenant indicated to the auditor that they may be disposing of the used solvents by simply pouring them down the drain (Anon Auditor 3, 1994: 28). This is contrary to ss. 118 and 121 of the WIA.

6:3.2.4 Strength of Tenant Covenant

Unit C was assessed under the SYBERR system and received a rating of C, which represents a greater than average level of environmental risk. The latest available

financial accounts, at the time the assessment was made, shows that the tenant made an operating profit of £147,406 for the financial year ending April 1994.

6:3.3. POTENTIAL IMPACT ON PROPERTY INVESTMENT RETURNS

Units B and C received very similar environmental risk rating scores, (see Table 6.1 where they scored 9 and 8.5 respectively). It could be argued, therefore, that the prospect for landlord liability at the two units would be very similar (provided the lease provisions were the same). However, the tenant at unit B made an operating loss of £244,138 for the last financial year, whilst unit C's tenant made a profit of £147,406. This will have an impact upon landlord liability where the tenant is prosecuted in the first instance and is not able to pay any fine or clean-up costs. In situations where the tenant cannot pay, the regulators are likely to pursue the landlord. Although the level of environmental risk will determine the prospect of environmental incidents occurring, the financial standing of the tenant will influence the chance that landlords will have their investment returns reduced as a result.

6:3.3.1 Environmental Protection Act 1990

a) Statutory Nuisance Provisions for Contaminated Land

The "appropriate person" term has been borrowed from existing water pollution law, and includes the person, or any of the persons, who caused or knowingly permitted the substances to be present in, on or under land (Environment Bill, 1994)[9].

The detailed discussion of this trigger term was provided in Chapter Four but,

[9] The Environment Bill received Royal Assent on July 19th 1995 and has become the Environment Act 1995. There were no major changes to the Bill in relation to this thesis.

> " ... it appears likely that a person may be held to have "caused" a contaminating substance to be present even if he was remote from the action involved" (ENDS Report, 1994: 17).

Under the new provisions, where the local authority consider the contaminated land is likely to threaten human health or pollute a nearby watercourse, it becomes a statutory nuisance, and the local authority will have a statutory duty to serve a remediation notice on the "appropriate person". Where the tenant is deemed to be the appropriate person, it will be required to undertake remedial action which will impact upon its financial standing. This could result in a minor interruption to the tenant's cash flow, or it could result in major financial problems for the tenant. The landlord's income security would certainly be affected in the latter case scenario.

The prospect of direct landlord liability arising will ultimately depend on whether the courts decide that the landlord could reasonably have been expected to be aware of the tenant's failure to store raw material, or waste properly. It seems possible that the reasonable landlord, when undertaking inspections of the property, would have become aware that the tenant was potentially contaminating land through the very poor storage of waste on the site.

b) Waste Management

Waste management offences covered by s. 33 of the EPA use the statutory trigger terms "knowingly cause" or "knowingly permit"[10]. The consequences for failing to comply with this section, and the potential for direct landlord liability, can be quite serious and have been discussed in relation to Unit A.

[10] Section 33 (c)

6:3.3.2 Water Resources Act 1991

As explained in relation to unit A on Industrial Estate One, the statutory trigger term "knowingly permitting" may allow the NRA to prosecute the landlord directly, particularly where the provisions of the lease provide the landlord with the "power to prevent" and the "knowledge of" a pollution incident. The tenant occupying unit C, has covenanted not to discharge, or permit to be discharged, anything into the drains and sewers that would result in the pollution of any controlled water. The lease also contains a tenant's covenant which allows the landlord to:

> " ... enter upon the demised premises for the purpose of ascertaining that the Covenants and Conditions of this Lease have been observed and performed" (WDA lease, 1993: 19).

This illustrates the dilemma, which was discussed in Chapter Four, very clearly. The inspection rights enjoyed by the landlord seem likely to allow the courts to impute knowledge of the leaking skip onto the landlord, i.e. reasonable landlords would be aware that the skip was leaking if they were exercising their covenants properly. Where a landlord becomes aware of a situation, he

> " ... becomes vulnerable to the argument that, by failing to prevent the continuation of the pollution, he is knowingly permitting it" (Tromans and Turrall-Clarke, 1994:80).

Since the lease provides the landlord with the knowledge - actual or imputed - of the leaking skip, the courts would then move on to ask another question. Is it reasonable to expect a landlord to be aware that a skip, used for the disposal of oil-coated swarf cuttings, situated adjacent to an open water sewer, is likely to lead to the pollution of the nearby controlled water? If the court decides that the answer to this question is 'yes', and the landlord cannot demonstrate he has acted reasonably in attempting to force the tenant to comply with its covenant not to pollute, it seems likely that the landlord can be successfully prosecuted for "knowingly permitting" the pollution of a controlled water.

Where these covenants exist within leases, therefore, it is paramount that landlords actively police them. They will need to be accompanied by regular inspections and any appropriate action (to a degree which would satisfy a court) deemed necessary to ensure that tenants do not transgress their covenants. If landlords introduce these covenants and do not actively police them, they face the prospect of becoming directly liable under this statutory trigger term.

The landlord must also be vulnerable to the charge of "causing" the excess oil to enter into the controlled water, following the most recent case law. This has been discussed in relation to unit A and in Chapter Four.

If damage subsequently occurs to the nearby controlled water, the NRA, under section 161, could undertake the necessary clean-up and reclaim the costs from the party who "caused" or "knowingly permitted" the pollution. Again as outlined in relation to unit A above, this could result in the landlord having to pay major clean-up costs.

6:3.3.3 Water Industry Act 1991

Section 111 provides that no person may discharge or allow the discharge into a public sewer (or a drain connecting with it);

a) any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment and disposal of its contents.[11]

A person found guilty of the above shall, upon summary conviction, face a fine not exceeding £5,000 (plus a daily default fine not exceeding £50). On conviction on

[11] Section 111 (a) Water Industry Act 1991

indictment the offender is liable for imprisonment for a term not exceeding two years or to a fine or to both. If the tenant is discharging solvents directly into the public sewer, the statutory undertaker may decide to prosecute under this heading.

Alternatively, the act of regularly disposing of solvents by pouring them directly into a public sewer, could mean that trade effluent is being discharged without the required consent. This is an offence under ss. 118 and 121 and can result in the imposition of a fine of £20,000 in the Magistrate's Court or an unlimited fine in the Crown Court. The occupier of the premises from which the unauthorised discharge is made will be liable for any fine.

There is the prospect for landlord liability where s. 111 of the WIA is contravened, i.e. the discharging into a public sewer of any materials which are likely to cause harm to the sewer (Turner, *et al*, 1994: 11). However, this has to be contrasted with the potential pollution of the controlled water from the leaking skip. It is far more likely that the landlord would be held liable for any damage caused from this source, since it is something which the landlord's inspections should have highlighted. The discharge of such materials into a public sewer may be impossible to detect by the landlord's usual inspections, and therefore, it is unlikely that a reasonable landlord could be said to have had knowledge of such activities.

6:4.1 SUMMARY

The empirical work carried out in relation to units A, B and C clearly demonstrates that there are circumstances under which a tenant's environmental performance could impact upon the property investment returns enjoyed by a landlord. The following work uses this to fulfil the aims of this thesis which are summarised here for convenience: which conditions seem to be present where high levels of environmental risks exist; whether the adoption of an EMS by a tenant would reduce these risks; and, whether and under which circumstances property investors are beginning to be concerned about these issues.

6.5 THE ETHNOGRAPH

"The Ethnograph is a set of interactive, menu-driven computer programs designed to assist the ethnographic/qualitative researcher in some of the mechanical aspects of data analysis" (Seidel *et al*, 1988). Since such a large amount of qualitative data had been collected during the research (over 29 hours of tape recorded and transcribed interviews were available for the analysis), such a data analysis tool enabled more efficient analysis and more time to be devoted to the interpretative aspects of the work.

Once the interviews had been transcribed using a word processor (Microsoft Word V6.0 for Windows), they were converted into ASCII files. This process, which strips out the formatting unique to each word processing package, allowed the transcriptions to be understood by the ethnographic software. Macro commands were established to speed up this process, although this task alone took the researcher approximately 140 hours to complete. Once in this format the transcribed interviews became known as data files.

The next stage involved printing out line numbered data files from the Ethnograph and undertaking the process of code-mapping the data. A wide right hand margin was produced when the data files were printed, which allowed the researcher to apply codes to the text. Each interview was read two or three times, after which code words relating to the text were applied. Where the interviewee was discussing a certain topic, or group of topics, a code was used in the right hand margin to denote the content of the discussion. For example, Figure 6.1 illustrates that one auditor discussed the issue of contaminated land between lines 62 and 82 and that this segment of text was given the code of "conlandris" (see Auditor 4, 1994: 41-42).

CODED VERSION [redacted] 5/25/1995 11:37 Page 1

#-WATERRISK #-CONLANDRIS[redacted]

the first instance but wasnÆt 56
particularly helpful in giving me 57
access to detailed information 58
such as what was in the drums 59
etc. 60

#-CONLANDRIS

[redacted] I understand your problem, 62 -#
some of the companies I deal 63
with are very reluctant to let 64
you have the necessary 65
information. It is not that 66
important we can still discuss 67
the possibilities. The drums 68
obviously have something to 69
do with their printing process, 70
but it could be waste or 71
storage, or both. Well there 72
are not a lot of labels so I am 73
not sure what they are. There 74
does not appear to be any 75
bunding, apart from the slight 76
concrete step at the bottom. 77
But this may be to carry the 78
fence posts than to do anything 79
else. So from this photograph 80
I can not see how it meats any 81
degree of storage satisfaction. 82 -#

#-EMS

Plus the fact there donÆt seem 83 -#
to be any labels, I mean do they 84
actually know what is in there. 85
Some of the drums look fairly 86
old, so it depends what they 87
are using them for. But if it 88
was the worse case scenario 89
and they were full drums of 90
raw material and waste 91
material, then the storage is 92
insufficient. So if there is a 93 -#
leakage, and the ground 94
surface is insufficient, I canÆt 95
see any drains, but there does 96
seem to be a drain here, but 97
unless these drains are to foul 98
sewer then you have to 99
question whether there entire 100
storage system is adequate. 101
102

#-EMS

NT: Even if they had a trade 103 -#
effluent discharge consent 104
presumably they would go over 105
it if there was an accident 106

The responses from all interviewees (auditors, lawyers, property investors and banks) were provided on the understanding that the data analysis would ensure anonymity. The referencing system, therefore, adopts a numbering system and informs the reader whether an environmental auditor (Anon Auditor), environmental lawyer (Anon Lawyer), institutional investor (Anon Fund), property investment company (Anon Company) surveying firm (Anon Surveyor) or bank (Anon Bank) have provided the data. For example,

"Anon Auditor 4, 1994: 45"

This indicates that the quote has been taken from the anonymous environmental auditor interview which has been numbered 4. The page number refers to the page numbers in Volume II of this thesis, where the complete transcripts can be found.

"Anon Fund 2, 1994: 167"

This indicates that the quote has been taken from the anonymous institutional investors interview which has been numbered two. Once again, the page number relates to Volume II of the thesis. This allows the reader to easily locate the page from which the quote has been taken.

Once all the data files had been code mapped the code sets were entered into the Ethnograph. This allowed the computer to store the text, between lines 62 and 82 of Anon Auditor 4, as "conlandris". Each data file's code sets were entered into the computer in a similar fashion.

On completing this operation, the data files were finally in a format which allowed the Ethnograph to undertake its mechanical procedures. This included the searching of coded segments in a single or multiple format. For example, if an interviewee had been discussing water pollution and the concept of environmental management, that part of the text would have been coded accordingly - the code words "waterrisk" and emsredrisk" would appear. In the analysis of the data, therefore, the researcher was able to undertake a series of searches using single or multiple codes, to find the

pertinent pieces of text within a few seconds. To analyse the views of the interviewees concerning any potential relationship which may exist between environmental management and the risk of water pollution, the Ethnograph could be instructed to search for the two relevant codes. Within seconds, any comments made which related to the two concepts, in isolation or together, could be brought up on screen and printed off.

Altogether the collection, transcription and analysis of all the data took a total of ten months to complete.

6:6 ANALYSIS OF AUDITOR INTERVIEWS

Based on the environmental auditors' responses during the interview - in particular answering the questionnaire - each unit was given a score relating to each question asked (see Appendix Four for a complete copy of the questionnaire). The scoring system related to the risk that contaminated land, water pollution, incorrect waste disposal, action under any other part of environmental legislation and civil claims, would occur at the various properties. Table 6.1 illustrates how these points were added to create a simple guide to the levels of environmental risk at various units.

The Table is for guidance only, and indicates the subjective nature of environmental risk assessment. For example, Unit A, which was discussed with two auditors, produced scores of 10.5 and 7.5, which represents a 28 per cent difference in risk assessment. Units A, B and C were discussed with two independent auditors to provide a simple check on the consistency of data which was being obtained. In conjunction with the remainder of Chapter Six, the table provides a useful guide to levels of environmental risk and the factors which influence it.

It was considered important to understand why these different levels of environmental risk existed. The interviews highlighted factors which were common

Table 6.1 A summary analysis of the level of environmental risk attributed to various tenants during the environmental auditor interviews (maximum total is 15).

Tenant	Questions from Environmental Auditor Interviews (Questions can be found in Appendix Four)										
	1a	1a1	1b	1b1	1c	1c1	1d	1d1	1e	1e1	TOTALS
A	Y	H	Y	H	Y	H	Y	L	Y	L	10.5
B	Y	L	Y	H	Y	M	Y	L	Y	L	9
C	Y	L	Y	H	Y	H	Y	M	N	N/A	8.5
C	Y	N/C	Y	N/C	Y	N/C	Y	N/C	N	N/A	8
A	Y	M	Y	M	Y	M	Y	L	N	N/A	7.5
B	N	N/A	Y	M	Y	M	Y	L	Y	L	7
D	Y	L	Y	L	Y	M	Y	L	N	N/A	6.5
E	Y	N/C	Y	N/C	Y	N/C	N	N/A	N	N/A	6
F	Y	N/C	Y	N/C	Y	N/C	N	N/A	N	N/A	6
G	Y	N/C	Y	N/C	Y	N/C	N	N/A	N	N/A	6
H	Y	L	N	N/A	Y	N/C	N	N/A	N	N/A	3.5
I	Y	L	Y	M	N	N/A	N/C	N/C	N/C	N/C	3.5

KEY Y = YES = 1
N = NO = 0

H = High = 1.5
M = Medium = 1. 0
L = Low = 0.5

Where N/C is preceded by N it is attributed a zero score. Where N/C is preceded by Y it is attributed a middle range score of one.
N/C = No Comment made by the auditor.

to the industrial units deemed to be environmentally risky, and indicated common factors amongst lower risk units. The ethnograph facilitated a thorough analysis of the transcriptions, highlighting the various factors common to the units deemed to be susceptible to higher levels of environmental risk, and those tenants deemed less likely to cause environmental damage.

A series of multiple code searches were undertaken based on the code words that were attributed to the various parts of the interviews. These code words related to various environmental risks. For example, where the auditors were describing why a tenant's activity could result in the contamination of land, that particular section of the text was coded "conlandris", and where comments were made concerning the likelihood of water pollution "waterrisk" was ascribed to the text.

This allowed the interviews to be systematically analysed in order to gain an understanding of the types of factors which lead to environmental risks. The results of this work, whilst supporting the general view that environmental risks are to a large degree influenced by the planning use attributed to a property, nonetheless identify factors which have largely been ignored by the property investment market since the environment debate began in earnest five to six years ago.

6:6.1 LAND CONTAMINATION

The first finding of the research, which confirms the consensus view, is that different types of tenant are associated with different levels of environmental risk. Unit A, deemed to be the most environmentally risky unit, is used for a printing process which involves the storage and use of chemicals and produces a trade effluent as well as other waste material. Although the mere fact that these substances were present indicated to the auditors that contamination of land could occur, several other factors also seemed to influence the level of risk.

For unit A, the drums of chemicals associated with the printing process and the very poor manner in which they were stored are key elements relating to the prospect of contaminated land. One auditor commented that:

> "There does not appear to be any bunding, apart from the slight concrete step at the bottom. But this may be to carry the fence posts than to do anything else. So from this photograph, I cannot see how it meets any degree of storage satisfaction" (Anon Auditor 4, 1995: 41-42).

The comments made in relation to unit C also seem to support the contention that it is not only the type of materials kept on site, but the quantity of materials, and the management controlling the storage, use and disposal of those materials, that is crucial to the underlying environmental risk. In discussing the issue of contaminated land one auditor remarked that it

> " ... could arise through poor housekeeping and storage on site. Metals, oils, and solvents are used on site, all are potentially contaminative and none seem to be stored particularly adequately" (Anon Auditor 1, 1994: 3).

Again in relation to unit C, it was noted that

> "If the solvents are stored properly and after they are used are taken off site ... then no problem. The danger is that the low level of awareness that this company seems to have they could be doing it wrong and not making these arrangements ... " (Anon Auditor 3, 1994: 28).

It, therefore, appears that the type of process being carried on, for example, whether it is a dry manufacturing process or a process using chemicals and other substances, seems to affect the level of environmental risk. The size of the operation is also important because this will impact upon the quantity of chemicals and other substances being used. The management controlling these activities has also emerged as a crucial factor influencing the level of environmental risk. The

following quotes have been taken from the interviews. In relation to unit G it was remarked that

> " ... the risk of this [contamination] occurring may be low if only small quantities were being used, which on the face of it seems to be the case here" (Anon Auditor 2, 1994: 11).

The auditor who was interviewed in relation to unit D thought that land contamination was unlikely because

> " ... essentially dry manufacturing activities were being carried on at the site, with very few chemicals and other substances being used" (Anon Auditor 5, 1994: 57).

Auditor 5 referred to the same points in explaining why the B2 planning use is likely to sustain uses which carry higher environmental risks than the B1 planning category.

> "It was not only the type of uses which were permitted to be carried on within this use class, but also the quantities of substances which are handled. Together the two mean that potentially polluting uses can be carried on within the B2 use class" (*ibid*: 6).

However, as auditor 2 indicated, it is not axiomatic that a tenant using large quantities of substances on site will be more risky than a tenant using significantly smaller quantities.

> " ... there may be more risk attached to unit G because they do not seem to be aware of their responsibilities, although they seem to be using fewer contaminative materials. Whereas unit E seem to have more sources of contaminative materials, but they may be better managed. So it is hard to judge the levels of risk" (Anon Auditor 2, 1994: 11). (Incidentally these two units ranked equal in Table 6.1 as having the same level of environmental risk).

Industrial Estate One is situated in a hilly area where there are controlled waters, streams, drinking water points and a reservoir all located nearby. This suggests that the area is very sensitive to migrating pollution, with anything going to ground reappearing at some stage and probably causing environmental problems (Anon Auditor 6, 1994: 67). Therefore, the geographical and topographical features of an area would appear to influence its ability to absorb any potential environmental incidents which may occur. The contamination and water pollution which may occur at unit A (see section 6:1.2 above) is potentially more of a threat in this location, as opposed to Estate Two, where the area is perhaps not quite so sensitive to migrating pollution.

6:6.2 WATER POLLUTION

The factors which seemed to suggest that there was a likelihood of water pollution occurring were very similar to those which indicated contamination of land was a possibility. Once again the process being carried on is paramount. Where the activities involve the use, storage and disposal of liquids, there is a possibility of water pollution occurring. Where the activities involve larger amounts of liquid, and particularly where the use of liquids is accompanied by poor management practices, the likelihood of water pollution occurring increases.

In relation to unit A - which was deemed to be susceptible to water pollution (Table 6.1) - both auditors referred to the tenant's inadequate bunding of the chemical store, and the poor management control accompanying it.

> "I don't understand why they have got some drums stored on the hardstanding, outside the fence, and some inside the fence. Either way, it does not look to be particularly safe, or well managed" (Anon Auditor, 6: 73).

In relation to unit B, there was concern over the absence of bunding of drums which were stored outside the property, and that the type of drainage system in use would

influence the level of risk (Anon Auditor, 1, 1994: 2). Where the drains are to open sewer, the risk of water pollution occurring will be higher (*ibid*).

The effect of poor management on the level of risk from water pollution should not be underestimated. In relation to unit G, it was remarked that the possibility of a water pollution offence would be made

> " ... more likely by the absence of bunding around the drums and the fact that the company has low levels of environmental awareness. If leaks were occurring it is possible that the company would not even spot it because they would not carry out the necessary checks. In a situation where you have an EMS we may find that the company would check the drums regularly, ... " (Anon Auditor 2, 1994: 11-12).

6:6.3 WASTE MANAGEMENT

The environmental auditors also highlighted the factors that they thought would influence the level of environmental risk concerning waste management. The important factors seemed to be concerned with the type and size of the activities being carried on by the tenant - which in turn will determine the type and amount of waste generated. Where special and liquid waste is generated the risks are higher, and the larger the amount of waste generated the higher the risk. However, as the environmental auditors made clear, even small amounts of controlled waste have to be dealt with properly.

Although the risk from contaminated land and water pollution was influenced by the levels of environmental awareness and management practices displayed by the tenant, in relation to waste management those factors assume even greater importance.

In relation to unit A it was remarked that

> "They do have special waste if they are using solvents, and there doesn't seem to be any evidence to suggest that they segregate the special waste from the controlled waste, ... it is not good enough, that is outside their duty of care. (Anon Auditor 4, 1994: 45).

This indicates that the tenant's inability to segregate the two types of waste, which was a management failure, caused the interviewees concern. The tenant's poor management in unit C was thought likely to lead to a criminal prosecution under the waste management regulation contained within the EPA.

> "There was no evidence that they are storing the waste properly. It may even be stored next to a surface drain, which is potentially very dangerous. The run-off from the scrap metals is an obvious risk and is potentially a criminal offence under section 33 ... " (Anon Auditor 1, 1994: 5).

A second auditor went even further and considered that

> " ... it is more than potential in this case. From what I can see, it is actually happening now. If we look at the photo we can see what is happening, and how easily it could be rectified. Contain the skip properly. It is a stupid place to store it" (Anon Auditor 3, 1994: 27).

This auditor also considered that the poor management displayed by the tenant was the crucial issue, and by improving awareness the risk would be significantly reduced.

The duty of care for waste, imposed by the EPA under s. 34, also increases the importance of the tenant's environmental management practices. It was remarked in relation to unit D that the fact that the tenant did not have an EMS raised doubts about the tenant's compliance with the duty of care to dispose of waste properly. Although the waste generated on the site was controlled waste, as opposed to

hazardous, the tenant still has a duty to ensure it is being taken away by a registered waste carrier and that the waste carrier is then disposing of it at a site licensed for such a purpose. The fact that the waste flow was not monitored and that there was no inventory suggested to the auditor that it was possible that the tenant could be disposing of waste incorrectly (Anon Auditor 5, 1994: 57-58).

Therefore, the types and sizes of processes being carried on at an industrial unit will clearly influence environmental risk from a waste management perspective. Section 33 of the EPA makes it an offence to keep/store waste in a manner likely to cause environmental damage and, therefore, substances capable of causing this damage would have to be stored in sufficient quantities in the first instance for this risk to exist.

Alternatively, whether a tenant can satisfy s. 34 of the EPA, which imposes a duty of care on all tenants to be aware of where their waste is disposed, and that it is carried by a registered person, will be fundamentally dependent upon the tenant's environmental management practices, and rather less dependent on the type and quantity of the waste produced at the site.

6:6.4 ENVIRONMENTAL MANAGEMENT SYSTEMS

The environmental auditors were also asked for their views concerning the concept of EMSs, and their use as a risk reduction strategy. This relates to the second research aim which is to determine whether a tenant, having developed such a system, would be less likely to transgress environmental legislation and cause environmental damage. The views from the auditors, and the evidence provided in Chapter Seven, overwhelmingly supports the contention that the implementation of an EMS within a tenant's operation will reduce levels of environmental risk.

The auditors were in agreement that

" ... the EMS certainly helps them [the tenants] identify risks, and I am in no doubt that their environmental performance improves, and they reduce their risks and liability" (Anon Auditor 6, 1994: 70).

"The tenant which has evaluated its existing environmental impacts, and possible impacts also, and has a system in place to manage these impacts, so that members of staff are aware of their responsibilities, will be far better placed to avoid environmental incidents ... " (Anon Auditor 5, 1994: 62).

These statements, as well as confirming the view that they will reduce environmental risk, allow the research to move forward and begin to identify 'how' and 'why' the implementation of an EMS by a tenant would reduce this risk. The auditors, when discussing the potential risks which stemmed from the tenant activities, began to provide answers to these 'how' and 'why' questions. The quotes in relation to unit C, in section 6:6.1, highlight the risk that solvents were being disposed of incorrectly, and the risk that water pollution was actually occurring through a leaking skip, was due to ignorance and a lack of environmental awareness on the part of the operator.

"A lot of processors are not aware ... that you can't just put anything down the sewer you want to. It seems to me that this company has not got a clue frankly on what their responsibilities and liabilities are" (Anon Auditor 3, 1994: 27).

"If we look at the photo [photograph of leaking skip, plate Nos 6.6 and 6.7] we can see what is happening, and how easily it could be rectified ... contain the skip properly. It is a stupid place to store it. ... If they knew anything that a leaky skip near a surface water drain common sense would tell you that you are likely to cause pollution and one would hope they would move it [*sic*]. But this company are just obviously not aware" (*ibid*, 6 - 7).

The interviewee went on to remark that

> " ... it is certainly our experience almost without fail that if a company goes to the trouble of making their employees environmentally aware, it may only require an hour's training or an hour's talk per year, almost without exception you will find the likelihood of somebody doing something silly is significantly reduced. If employees are aware of the Environmental Protection Act and that if anything untoward could have serious consequences for the company and therefore their own jobs, they are far less likely to do something stupid. Generally it is that people aren't aware rather than people being malicious" (*ibid*, 1994: 32).

Another auditor felt that any problems were far more likely to develop without an environmental management system or where low levels of environmental awareness exist (Anon Auditor 2, 1994: 13).

The level of awareness and education and training of the work force are, therefore, crucial factors influencing the likelihood of environmental incidents occurring. On the whole, the auditors considered that the development of an EMS by a tenant would deliver these benefits, thereby reducing the potential for environmental problems to develop.

> " ... the implementation of an EMS must increase the level of awareness right across the company, all levels of personnel, which is where the awareness should be. With performance indicators being used and being acted upon then 'yes', without doubt the EMS would reduce the likelihood of environmental incidents occurring on site" (Anon Auditor 2, 1994: 19).

> "Also, which is one of the most important aspects of environmental risk reduction, are the staff receiving adequate training in environmental matters? I think 7750 caters particularly well for this aspect, and it will certainly reduce risk in this respect" (Anon Auditor 1, 1994: 8).

Another advantage of the BS 7750 standard, to which Anon Auditor 3 referred, is the ability of the management system to combine increased levels of awareness with an element of discipline. The procedures have to be in place, and the staff have to be aware of them, but they also need to be aware that if the procedures are not complied with action will be taken (Anon Auditor 3, 1994: 33). Indeed the quote from auditor 2 above also suggests that the tenant must act upon the performance indicators used, implying that discipline is essential if environmental risk is to be reduced.

The only serious concern expressed about the BS 7750 standard was the fact that unless the results of the system were independently audited, the management would be tempted to reject findings that entailed most expenditure to rectify. It would, therefore, be sensible for interested parties to look beyond the mere fact that a tenant has BS 7750, they should enquire about what the tenant does with the results of the audit before being satisfied that all the environmental risks have been reduced (Anon Auditor 4, 1994: 53).

An opposing view was offered by an auditor who considered that

> " ... the way BS 7750 has been written, there must be a continual commitment to improving the company's environmental performance. As long as there is a competent person in the company who is overseeing the work ... and they are reviewing their procedures then 'yes', 7750 will reduce the likelihood of environmental incidents occurring on site" (Anon Auditor 1, 1994: 8).

In concluding this section on how the EMS concept could reduce the risk of environmental incidents arising, it is possible to summarise as follows.
There was general agreement that the EMS concept is very good at delivering the improvements in employee awareness, education and training which are required to avoid the incidence of environmental damage. It was also considered that such improvements need to be accompanied by a certain level of discipline to ensure that the system is complied with. Again the standard was thought to be capable of

delivering this control. Concern was expressed about the fact that the system does not require the audit to be externally verified, therefore providing the opportunity for management to select the strategies which do not necessarily reduce and maintain levels of environmental risk to a minimum. This was countered by the argument that the standard would require the continuous improvement of environmental performance, which would, in effect, deliver the necessary reductions in environmental risk.

The Chapter so far has outlined the procedures the researcher has gone through to collect and analyse the data. It has also provided evidence that the environmental performance of certain tenants occupying property can cause environmental damage, and that this damage can impact upon property investment returns. Finally, the EMS concept has been examined to determine whether it is capable of reducing levels of risk. The remainder of the Chapter examines the views of the property investment market towards environmental risk, and the EMS concept in particular.

6.7 ANALYSIS OF PROPERTY INVESTOR INTERVIEWS

The third research aim is to examine property investors' views of environmental risks. Detailed semi-structured interviews were undertaken to determine whether property investors perceive there to be environmental risks associated with industrial properties in relation to current occupation, and what changes have been made to the investment process as a result of the environment debate. These interviews concentrated on six main themes:

- have property investors altered their investment strategy due to the environmental risks attached to property, and industrial property in particular?

- do property investors consider environmental factors to be a risk, and are they attempting to limit and control it?

- have leasing practices been updated in an attempt to reduce the risk of environmental liabilities occurring?

- are warranties and indemnities sought by investors to reduce the risk of environmental damage impacting on investment returns?

- do investors consider that the implementation of an environmental management system by a tenant can reduce their exposure to environmental risk?

- when do investors consider it most important to take account of the tenant's environmental performance in the property investment decision-making process?

The results of the three different populations who were interviewed and had questionnaires sent on to them are analysed below.

6:7.1 INSTITUTIONAL INVESTORS

6:7.1.1 Fund Strategy

The first main theme related to investment strategy. The consensus view of the institutions was that although fund strategy had not changed, environmental issues had certainly become an integral part of the stock selection process.

> "The fund strategy has not been altered because of environmental issues, i.e. we do not purchase less property or less industrial type property because of environmental issues.
>
> However, the issue of the environment is certainly something which enters the stock selection process. This has been a fairly recent development" (Anon Fund 5, 1994: 208).

Another institutional investor agreed that this was the approach adopted.

> "The bottom line is that we carry out checks to try to reduce our exposure, rather than avoiding particular sectors. There may well be risks attached, but if we can carry out the necessary checks then it will reduce these risks materialising. We have taken the view that this is the best way to go about it all" (Anon Fund 1, 1994: 152).

6:7.1.2 Controlling Environmental Risk

Whilst all institutional investors attempted to limit and control their exposure to environmental risks when buying property in some way, their approach to the issue was quite varied. As highlighted by the first theme, all investors recognised that greater checks at the stock selection level were necessary to reduce environmental risk. Not surprisingly, the main concern related to existing environmental damage which may have occurred at a property prior to acquisition, for example, whether the land had been contaminated. This was dealt with by undertaking desk-top studies, which were carried out by most investors on every property they purchase, irrespective of type or location. Depending on the results of these initial investigations, further research may be undertaken which would include a site investigation. Some, although not all, institutions carry out investigations into the tenant's activities before acquiring an industrial type property.

> "We believe that problems can occur from the occupying tenant's activity, because we have experience to prove it, so we are interested in what the tenant is actually doing ...
>
> "Yes, we look at the sites we are about to purchase also. This is where the stock selection process has changed slightly, we do not believe in buying in environmental problems ...
>
> "The management surveyors and building surveyors will be responsible for visiting the sites before we decide to purchase to investigate any obvious problems the tenant may have ... The tenant's general housekeeping and management will be of interest to us" (Anon Fund 5, 1994: 209).

Another investor, when asked about whether they were concerned about the tenant's activities on site, remarked,

> "Very much so. We are very interested in what the tenants are doing on site" (Anon Fund 3, 1994: 178).

Other investors did not consider it was necessary to examine the tenant's potential to cause environmental damage because,

> "I tend to think that if it is a dirty trade or chemical plant with perceived problems we wouldn't be buying it anyway" (Anon Fund 1, 1994: 153).

The first page of the institutional questionnaire/interview was designed to obtain information relating to the structure of the property portfolios of those being interviewed. This allowed the research to investigate whether the construction of their property portfolio influenced investors' responses to various questions. Although it was a very small sample - consisting of only five interviews and three returned questionnaires - it was possible to draw some tentative conclusions.

Firstly, it appears that where investors have experienced problems in the past (see above quote from Anon Fund 5), they are more aware of the possible risk and, consequently, they consider it necessary to examine the tenant's activities before deciding to purchase. Secondly, although the size of the industrial element of their property portfolio did not appear to influence investors' views concerning this element of investment risk, their exposure to the B2 general industrial market appears to be very influential. Most, but not all, investors holding very small amounts of B2 type property were less concerned with this type of risk.

One investor remarked that although the tenant's environmental management practices were relevant to the stock selection process, they were reluctant to make it a prerequisite before investing since it would put them at a disadvantage to the rest of the market.

> "I think it [a tenant's environmental management practices] is relevant. ... We can only go at a pace which is complementary to the rest of the market, and once it becomes commonplace for these sort of things to be required, then it will be easier for us to demand that. So we would not wish to put ourselves at a disadvantage from an investment point of view. So I guess there is scope to get further into that in the future" (Anon Fund 4, 1995: 193).

So before purchasing a property, all investors undertook an investigation into environmental matters in some way. However, there were variations in how detailed these investigations were, and at what stage they were carried out. At least one investor also felt that the market was restricting their ability to consider the concept of environmental management more fully, although they considered the concept relevant to the stock selection process.

Institutional property investors were also questioned about any procedures that they had in place to limit the environmental risks which may exist within their current property portfolio.

Every institutional investor attempted to assess their existing property portfolios in order to manage any environmental risk to which they may be subject. This process was again primarily concerned with the existence of contaminated land, and not all investors were concerned with reducing the possibility of environmental problems developing in the future by examining the current activities of occupying tenants. Further, those investors who did assess their current tenants' activities were the ones who had experienced problems in the past.

> "The fact that a property investor does not have BP Chemicals as a tenant, and the fact that they do not hold B3 - B7 properties, does not automatically mean that they will not have tenants which can cause problems" (Anon Fund 4, 1995: 195).

Another investor, agreeing that it was important to assess the tenant's activities, outlined the constraints of such a policy.

> " ... one has to appreciate the time constraints which we operate under. It is impossible for us to examine all of the tenants who occupy our property. We may concentrate on a few tenants which we feel are more likely to cause problems ...
>
> " ... our investigations do involve assessing the tenant's potential to cause environmental problems. This, as I have mentioned, is not particularly scientific however. It would, in most cases, involve selecting our tenants which are most likely to cause problems and getting the management surveyors around to have a look" (Anon Fund 5, 1994: 210).

Another investor remarked that the size of the property portfolio meant that it was not viable to audit every property. The approach adopted again involved the identification of the biggest risks first, allowing knowledge to be built up in order to deal with the issues in the future (Anon Fund 4, 1995: 194).

The other noticeable factor concerning such policies was that the work was undertaken by surveyors rather than environmental auditors.

> " ... twice a year inspections are carried out of properties. These assessments include an assessment of the tenant activities. The properties are visited by building surveyors, property managers, and surveyors to look at all sorts of different issues. What the tenant does, in terms of potential to cause environmental damage, is also a consideration" (Anon Fund 3, 1994: 179).

6:7.1.3 Leasing Practices

Almost without exception the institutional investors considered that their leasing practices had been updated in the light of environmental issues. The investors remarked that leases had been altered so that they specifically mention important pieces of environmental legislation, for example the Environmental Protection Act and the Water Resources Act (Anon Fund 1, 1994: 155).

However, the property market cycle, and to a lessor extent landlord and tenant legislation, were preventing investors from introducing stricter user covenants and restrictions on sub-letting and assignment. This was not, therefore, considered to be a viable option at the moment as a means of limiting their potential exposure to environmental risks associated with current land uses.

> "We are too concerned about losing tenants, or not being able to attract them in the first instance. Therefore, we are not prepared to impose too many restrictions on what our tenants can and cannot do" (Anon Fund 3, 1994: 179).

> " ... we would be loath to introduce restrictions on sub-letting at the moment because of the state of the property market" (Anon Fund 5, 1994: 211).

It was noticeable that the same investor thought that the restrictions may be introduced in the future when the market had improved (*ibid*: 212).

Landlord and tenant legislation was also cited as a reason why changes in leasing practice had not been significant. One investor did not see the need to introduce changes.

> " ... I think in a sense if it is a proper all square FRI lease it should place the burden on the tenant anyway. In terms of complying with statute, not causing nuisance to adjoining owners, all those kinds of things should be covered" (Anon Fund 1, 1994: 154).

It was also considered difficult to introduce restrictions on assignment due to the changes made to the Landlord and Tenant legislation in 1988, which means that a landlord cannot unreasonably withhold consent if a tenant wishes to assign his lease. It was thought that such legislation could nullify any changes made in that direction.

(However, it should be noted that the questionnaire responses indicate that some investors were prepared to introduce stricter user covenants and restrictions on assignment, notwithstanding the current poor tenant demand and the uncertainty relating to the Landlord and Tenant Act).

6:7.1.4 Warranties and Indemnities

The general view from the interview and questionnaire responses was that warranties and indemnities were sought, but not very often received, from the vendor or tenant. The reasons given for their quite limited use ranged from the fact that the market will

not accept them (Anon Fund 2, 1995: 170), to the investors being uninterested in a property (on environmental grounds) where it was considered desirable to obtain a warranty (Anon Auditor 3, 1995: 180).

6:7.1.5 Environmental Management

This group of questions determined the attitude of property investors towards the concept of environmental management. In particular, the respondents were asked whether they take the issue into account in the stock selection process, and whether they consider that the adoption of an environmental management system by a tenant would alter the risk profile of a property investment.

When asked about the concept some of the responses were as follows:

> "As I mentioned before, investment surveyors have suddenly discovered the words British Standard. The investment surveyors are very keen for the tenants to comply with all environmental legislation, to comply with other legislation and to comply with standards, whether industry guides or a British Standard. So I would say that we are already taking this factor into account when we make investment decisions, although it is in a very crude form. It is another box which is ticked, which all add up to influence our decision of whether to invest, or how much to pay" (Anon Fund 5, 1994: 213-214).

> "I think it would be taken into account somewhere along the line, but it would not be a fundamental consideration. We would obviously have a great deal of interest in the financial success of a tenant, and I think we are beginning to look at this issue as well" (Anon Fund 3, 1994: 180).

> "It already does, but again we take a commercial view. It depends how large the perceived risk is. It would influence our view of the riskiness of

a property, but in a lot of cases it would probably only do so marginally" (*ibid*: 180).

However, investors also considered that the concept of environmental management would become more important under certain circumstances.

"Well if they've got that [an environmental management system] it would be extremely reassuring, I suspect it would only be in circumstances where we saw if there was a process going on which appeared to us to carry a very high risk, then if they can demonstrate that they have got that then that would obviously assist us in evaluating the risk to us as a landlord" (Anon Fund 4, 1995: 199).

"Yes, I suppose we would consider it, if they were involved in some form of polluting activity, whether they had such a system depending of course on whether it is an industry benchmark and it does deliver these benefits of reducing potential environmental problems developing. But also we would want to know the cost of the company's potential liabilities and the net asset value of the company to determine this level of risk, because we want to know if they can keep paying the rent and pay for any liabilities that they may have off site. But the cash flows have not been developed this far to allow for this yet" (Anon Fund 2, 1994: 171).

Thus the type of tenant occupying the subject property will influence the investor's decision of whether to assess their environmental management practices or not. Also the type and size of the existing property portfolio will influence whether investors examine this issue.

"This is not a major issue for us. We have quite a limited number of properties which we feel are under any very real risk from being contaminated. The size of the portfolio will also limit our interest in this type of issue, since we will be heavily dependent on sector performance and market risk for our own performance as a fund. So it is not in the top ten factors, although it is a factor which I feel could become more of an

> issue. I would go further and say that I think it will become more important, but it will always be more important to smaller property investors and industrial landlords such as the WDA" (Anon Fund 5, 1994: 213).

Therefore, where certain conditions exist, for example, where a financially weak tenant is carrying on a use which is potentially contaminating, the EMS concept becomes more important. A more detailed examination of these conditions is provided in section 6:7.1.6.

Whilst only one interviewee did not feel that the implementation of an EMS would reduce the risk of a property investment at the moment - and even this respondent stated that the issue could become influential in the future (Anon Fund 1, 1994: 156), doubts were raised over whether British Standard 7750 was the correct vehicle to deliver the reductions in environmental risk.

> "I am unsure about the merits of such a system to deliver environmental benefits, although I acknowledge that I am not an expert on the Standard. We are interested in the environmental performance of a tenant, and this factor would influence us in our decision to determine the risk of the property. However, I am not sure BS 7750 is the answer" (Anon Fund 3, 1994: 181).

One interviewee described BS 5750 - the quality assurance standard - as a waste of time (Anon Fund 2, 1994: 171). It is possible that the views of property investors concerning the merits of BS 5750 could impact upon the way in which the property investment market reacts to the widespread adoption of a British Standard relating to environmental performance. If such views are prevalent in the investment community, it would hinder any market developments which allowed the environmental management concept to be fully taken into account. Such an outcome must be a possibility where market attitude is very important to the stock selection process of many investors.

> "The thing that really influences us in stock selection is the market. If the market starts placing weight on the environmental performance of tenants then we would follow. But as far as I am concerned at the moment the market does not ... " (Anon Fund 1, 1994: 156).

6:7.1.6 Circumstances under which the environmental performance of a tenant should enter into the investment decision-making process.

The institutions were presented with a number of scenarios and asked when they consider it necessary to examine the tenant's environmental management practices.

The first scenario concerned a property where the tenant was undertaking activities which were capable of causing environmental damage.

> "I would say it was certainly necessary to consider the environmental performance of the tenant in these circumstances" (Anon Fund 3, 1994: 181).

> "If the tenant did not know what it was doing in terms of its environmental issues then we would be concerned, so I think, yes, it is necessary to look at whether the tenant has got its environmental issues all under control" (Anon Fund 2, 1994: 173).

There was total agreement amongst the interviewees concerning this issue. It was considered either important or very important to be aware of the tenant's environmental performance in this situation. This finding confirms that institutional investors are aware that where tenants cause pollution incidents the landlord's investment returns can be adversely affected.

The second scenario involved a tenant carrying on industrial activities off-site which were capable of causing environmental damage. The investors were asked whether

they considered it necessary to take into account the tenant's environmental performance under such circumstances. Whilst there was not such a high level of agreement concerning this issue, it was still considered important or very important to understand what procedures the tenant had introduced to reduce the prospect of environmental incidents occurring.

> "This is where they are carrying on activities that are potentially polluting but which are not on our site. It would be the knock-on effect that we may lose our tenant as opposed to actually being asked to clean up a site. But I would still say it is important, depending on what type of industry the tenant is involved in of course. If we tried to put it on the market then potential investors may say, gosh that is ABC Ltd and they have just been found liable for a clean up, and the fact that they didn't do it on the site that we offer up to the market would become an irrelevance. It would come down to security of income. The market would be asking what is going to happen next to that company? How much is it all going to cost and will they have any money left?" (Anon Fund 2, 1994: 173).

> "Anything which has the potential to impact upon income security should be considered. If the tenant just has not got the discipline, perhaps a bad track record, then we would want to know. So I would say, yes, it is important to look at this issue" (Anon Fund 3, 1994: 181).

> "This would be part of the assessment of the tenant covenant. We would be interested in the company as a whole obviously, not just the part of the company which occupied the property we are buying" (Anon Fund 5, 1994: 214).

The discussions held with institutional investors illustrate that they recognise the potential for a tenant's wider commercial activities to carry environmental risks, and that potential liabilities associated with such risk can impact upon the income security of a property investment.

The tenant's covenant strength also appears to influence the decision of whether to assess the tenant's environmental performance at the stock selection level. Most investors acknowledged that where a weak covenant is accompanied by environmental risks, it becomes more important to examine the tenant's environmental management practices. However, where these circumstances exist, it could also result in the investor walking away from the property altogether.

> " ... we would want to know the cost of the company's potential liabilities and the net asset value of the company to determine this level of risk, because we want to know if they can keep paying the rent and pay for any liabilities that they may have off site.
>
> "So over all, the answer is yes, but it is not a strict discipline. Somebody may raise the issue and say, oh they produce some awful process on the site or another site, and the clean up costs may be X, as opposed to their net asset value of Y, so this is potentially risky. But it is not exact" (Anon Fund 2, 1994: 172).
>
> "We as landlords obviously have the reversion of any property we let. Therefore, we must consider what will happen at this point, redevelopment, refurbishment or whatever. If we feel the tenant could upset this, perhaps by causing environmental problems, then we would be silly not to consider it. So if a tenant's ability to absorb environment related loss was limited, it increases the importance of their environmental management practices.
>
> "However, it could be that we just walk away from the deal. If a tenant has a poor covenant, and may cause environmental problems we could take the view that it wouldn't be able to pay for it. Therefore, to avoid becoming the ones who would be liable, we may just walk away" (Anon Fund 5, 1994: 214).

Where the leasing arrangements did not offer the landlord adequate protection in respect of potential environmental problems which may be caused by the tenant, institutions either placed a greater emphasis on the tenant's environmental performance (Anon Fund 5, 1994: 214 and Anon Fund 4, 1995: 203) , or they were not prepared to invest in that property (Anon Fund 3, 1994: 181).

The fact that a tenant was prepared to indemnify a landlord against environment-related losses was not a major factor influencing whether the institutions considered the tenant's management practices or not. Some institutions considered that where the tenant needed to provide an indemnification, they would not be interested in the property (Anon Fund 3, 1994: 181), whilst others thought that the indemnification would be quite limited in any protection it offered the landlord,

> " ... remember the indemnification is limited to their [the tenant's] financial standing. Therefore, it would mean that if it was there, the EMS may be less important. But I would suggest we would still be very interested in the tenant's practices" (Anon Fund 2, 1994: 174).

Where a tenant is capable of causing environmental damage, and the property is situated in an area which is sensitive to this damage, the institutions considered it important to examine the tenant's environmental performance.

> "In this situation then, what the tenant was doing would be a consideration. Part of this check [to determine what they are doing] would include looking at their environmental performance. I think here it could be important if the tenant was carrying on dangerous activities" (Anon Fund 3, 1994: 182).

This view was also accompanied by the caveat that although the tenant's environmental performance would become more important in this situation, it could also mean that the investor would walk away from the property rather than undertaking these assessments (Anon Fund 5, 1994: 215).

There was a clear consensus view amongst institutions that the size of the tenant occupying a property will influence the level of importance environmental management enjoys in the investment decision-making process.

> " ... there has to be some sort of inverse relationship between the size of the tenant's company and the importance of looking for factors such as good management practices within tenants.
>
> "There is nothing new in this. With a large, strong covenant it is just assumed that the tenant will have good management and the issues become less important to our considerations. Where the tenant is smaller, we will look for factors such as BS 5750 [Quality Standard] to make us feel safer with the tenant. ICI will just be presumed to have 5750, and if they don't, we don't care. They will survive. They are a large successful company. The smaller tenants we will look for things such as quality management, and increasingly now, environmental management" (Anon Fund 5, 1995: 215).

It was not considered important to differentiate between high yielding and low yielding properties for the purposes of environmental management. The fact that the implementation of an EMS could enhance income security was thought to be important to lower yielding property as well as higher yielding. However, one investor acknowledged that it was probably slightly more important to consider a tenant's environmental performance in the high yielding situation (Anon Fund 1, 1994: 160).

Institutional investors considered that the size of the property portfolio was relevant to the level of importance attached to the existence or otherwise of an EMS within a tenant's operations.

> "The larger the fund, the more diversified you are, so the risk of the individual cases is obviously less important. It is hard to generalise, but

clearly this type of consideration must be more relevant to our smaller funds ... " (Anon Fund 1, 1994: 161).

"Overall it would be more important to our smaller funds because they are more transparent" (Anon Fund 2, 1994: 175).

The structure of the fund was also considered to be relevant to the decision of whether EMSs should form part of the investment decision-making process. One investor remarked that by including the environmental performance of the tenant in the stock selection process, it would " ... hopefully improve our performance" (Anon Fund 4, 1995: 206). Another investor thought that the EMS concept would not be a fund structure consideration until agents began to differentiate between levels of good and bad environmental management. "When they do this, we can look for properties which are well let in East Anglia occupied by tenants which have good environmental management. But until the agents start taking it into account, it will not be a fund structure consideration" (Anon Fund 5, 1994: 216).

6:7.2 SUMMARY

The analysis of the interview and questionnaire responses has provided a thorough understanding of the attitudes towards environmental management of some of the major financial institutions investing in property in the UK.

It is contended that institutional investors have recognised that a tenant's environmental performance, particularly where certain conditions exist, can impact upon their investment performance. This is evidenced by the fact that many institutions now look at this issue in the stock selection process and assess the environmental practices of tenants occupying their portfolios. It is evidenced by the updating of leases, where institutions require existing tenants to comply with all environmental legislation, with the EPA and the WRA often being specifically mentioned. Tenants are required to comply with environmental legislation because investors are concerned that poor environmental performance on the part of the

tenant will impact upon investment returns. A number of factors were also identified which appear to trigger this interest in environmental management. These findings are supported by recent RICS-sponsored research, undertaken at the City University which determined that 75 per cent of investors surveyed take into account the present occupiers' use of premises to assess levels of environmental risk (Lizieri *et al*, 1995).

6:7.3 PROPERTY INVESTMENT COMPANIES

6:7.3.1 Fund Strategy

The interview and questionnaire responses from property investment companies were very similar to institutional investors' responses. No company had increased or decreased its allocation to industrial property due to perceived environmental risks, although all of them had altered their stock selection process. This involved thorough environmental investigations of property before the decision to invest was made. One property company remarked that the main reason these investigations were undertaken was to satisfy mortgagees who hold the company's property as security (Anon Company 1, 1994: 218). Therefore, in order to continue raising finance through the mortgage route, the company was obliged to undertake certain environmental investigations.

6:7.3.2 Controlling Environmental Risk

Every property company interviewed has attempted to limit and/or control the environmental risk which exists within their portfolios, although the manner in which this is undertaken varies. The greatest concern was whether the potential purchases were contaminated from historical uses, as opposed to concerns relating to pollution from existing or future uses. Some of the companies with a larger allocation to the general industrial use class seemed to be more interested in present uses than other

property companies that either had less exposure to the industrial property market, or less exposure to the general industrial class of the property market.

> "When we do buy standing investments, and I suppose we have bought about £80 million so far this year, we have carried out environmental audits of the existing buildings and tenants using the forms* which I have mentioned" (Anon Company 2, 1994: 237).

Another property company, although it had 68% of its property portfolio by value in industrial property, had negligible amounts of B2 type property, and did not consider it necessary to examine the tenant use because they " ... rarely encounter heavy (B2) or special (B3 - B7) industrial users" (Anon Company Questionnaire Response 1994).

Anon Company 3, which had 10% of its 14% industrial portfolio in B2 property, considered the lease as a better form of protection against environmental losses than considering what the tenant does now.

> " ... we would tend to look to the construction of the leases to see that we were adequately protected. If we then felt at risk in terms of the provisions within the lease then we would look more specifically at the individual uses to see what damage they cause which might impact on investment value as a whole" (Anon Company 3, 1994: 251-252).

Those investors with a large allocation to the general industrial class of the UCO seemed to be more inclined to carry out regular inspections of properties within their portfolio. Further, the investors who did carry out regular inspections seemed to be more inclined to examine the current activities of tenants rather than rely purely on site investigations. However, whilst this was the general pattern, there were investors

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* The forms were discussed earlier in the interview. They are used by management surveyors as a guide to indicate where potential environmental problems may occur through the tenant's use of industrial property.

with a low allocation to industrial, and general industrial in particular, who still thought it necessary to investigate tenant activities.

> "In terms of our existing portfolio, we carry out six-monthly environmental audits on all of our property. We concentrate on the industrial sector, but we do it for our retail and office sector when required. The way we do this is that we have simple inspection reports which the estate managers, who will be chartered surveyors rather than specialists, use to identify potential risks on their six monthly inspections. If there is a negative answer to any of those questions, it will be followed up by a specialist report and if works are required to clean up an environmental problem there will be a monitoring process until it does. So we have a rigorous policy towards our existing portfolio" (Anon Company 2, 1994: 237-238).

The above quote, which was taken from a respondent who represented a company with a large exposure to general industrial property, can be contrasted with the following statement where the company holds very little B2 property. This interviewee considered that

> " ... unless there's a problem, we don't go through our existing portfolio and assess environmental risks associated with each existing property.

> " ... we have not got the time, or necessarily the expertise to investigate each tenant which may cause a problem. Also we have to remember that our ability to do anything about it is quite limited in some circumstances. Our leases may be quite dated and so it may not mention anything about a tenant carrying on activities in a fashion which harms the environment. If we have a modern lease, it may give us more power to control what the tenants are doing. We will be more capable of preventing them from undertaking activities in such a way as is likely to leave our land damaged in some way" (Anon Company 3, 1994: 252-253).

6:7.3.3 Leasing Practices

Some property investment companies responded that they had updated lease provisions in the light of environmental issues, and that the tightening up of user clauses and assignment provisions had been a part of this process. However, other property investment companies, although acknowledging that restricting user covenants and assignments would reduce the risk of environmental incidents developing on site, did not consider it appropriate to do so. There did not seem to be any relationship between these contrasting views and the size of the property company allocation to industrial property or weighting of general industrial within the portfolio.

> " ... in terms of maintaining an institutional value, you have to have a fairly unrestricted user clause, otherwise it will have an impact upon investment value and the whole liability within the lease" (Anon Company 3, 1994: 253).

This investor went on to explain that instead of altering the user covenants directly, the general provisions within the lease had been updated, for example, the tenant must comply with all legislative requirements. It was thought that this would provide the necessary control over the tenant without impacting on the value of the investment (*ibid*, 253-254).

Another investor outlined a similar approach which included allowing the tenant to use the property for the current use, plus any other use within the same planning class " ... subject to the landlord's consent not to be unreasonably withheld" (Anon Company 1, 1994: 223).

It was also considered by one company that because its property portfolio was quite heavily biased towards the South East of England, their properties were not occupied by tenants wishing to carry on high risk industries. The company did not, therefore,

feel it necessary to restrict user covenants and encounter the problems such a policy would bring about at rent review (Anon Company 2, 1994: 238-239).

It appears that whilst property investment companies have updated lease provisions in respect of tenant compliance with legislation, very few other amendments have been made to the leases. The restrictions on sub-letting, assignment and user covenants were considered by many investors to be undesirable due to the impact on investment values, particularly at this stage in the property cycle.

6:7.3.4 Warranties and Indemnities

The experience of the property investment companies was that whilst they sought warranties and indemnities from vendors, it was almost impossible to receive them. In the vast majority of cases, purchasers had to rely on their own investigations in order to determine the state of the land since vendors were not prepared to provide such guarantees (Anon Questionnaire Response, 1994).

In relation to the land becoming environmentally damaged during the term of the lease, and the policy adopted by companies to avoid such an occurrence, two distinct opinions were offered. Firstly, there were those who considered that the standard lease would be sufficient to protect them from this risk (Anon Company 3, 1994: 255, and Anon Questionnaire Response, 1994). The opposing view was that explicit changes had to be made to the lease to secure such protection.

> "Briefly our main aim is to make explicit that the responsibility for such matters rest with the tenant and we are particularly concerned about the yielding up provisions, to make certain that an environmental clean up forms part of the yielding up provisions and so if they do not they will not comply with the repairing obligations" (Anon Company 2, 1994: 240).

6:7.3.5 Environmental Management

Property investment companies were also asked about the environmental performance of tenants, and in particular, whether they thought the implementation of an EMS by a tenant would reduce the risk profile of a property investment. The views were similar to the responses gained from the institutional investors. On the whole, the interviewee and questionnaire responses indicated that property investment companies consider the environmental performance of tenants at the stock selection level. In a similar fashion to the institutional responses, the issue is considered to be of greater importance under certain circumstances.

> " ... it would depend on the use of the tenant. If it was deemed that that tenant was of a particular noxious dangerous use, then it [the environmental performance of the tenant] might be something which we would investigate" (Anon Company 3, 1994: 256).

> " ... if we were letting a major industrial property, we would want to know who was going in there and what they were going to do there, and we would want to be satisfied they were not going to contaminate the place" (Anon Company 4, 1994: 275).

Another investor remarked that although they would want to investigate the tenant themselves, they considered the BS 7750 standard - being based on a systems approach - would lead to inevitable improvements in the tenant's management of environmental affairs (Anon Company 3, 1994: 257-258).

6:7.3.6 Circumstances under which the environmental performance of a tenant should enter in to the investment decision-making process

There was general agreement amongst the property companies that where a tenant was capable of causing a pollution incident on site, it was important, or very

important, to consider the tenant's environmental performance in the investment decision-making process.

> "I would think also that it is very important to look at the tenant's environmental performance in this case. If the tenant can, for example, cause a site to become contaminated, then we will be interested in what it can do by itself to prevent that happening" (Anon Company 1, 1994: 229).

There were different views concerning the importance of considering the tenant's environmental performance off-site.

> "I understand your angle, but I just don't think this will have a bearing on the financial status of the tenant. They have carried on their activities for many years without anything amiss occurring, and the environmental legislation will not make too much difference to that. It could mean they have to pay the odd fine, but I don't think it is as much of an issue as people make out" (Anon Company 1, 1994: 229-230).

Such views can be contrasted to those property investors who clearly thought the issue was one of increasing importance.

> "I think the answer at the moment is not important. But I can see that that is the direction in which we will be heading in the future. One only has to look to America to see how large organisations can be crippled and reputations tarnished by major acts of pollution. But I don't think that we have developed it that far yet.
>
> But I take the point that if the company was capable of causing off-site problems then it would be more important to look at their environmental record than if the company was a completely serviced-based company. That would make perfect sense, it is just at the moment I am not sure how

> much this would be taken into account in the overall investment decision-making process" (Anon Company 2, 1994: 244).

Another company went further and expressed the view that,

> " ... if the tenant's financial security is in some way linked to other companies, and they can cause obvious environmental problems, then it should be a consideration. Part of this process may be to look at the tenant's EMS ...
>
> "The difficulty is with gaining the information that you would actually need before making the decision ..." (Anon Company 3, 1994: 258-259).

The interviews and questionnaire responses highlighted that property investment companies were less inclined to include the tenant's environmental performance in the investment decision-making process where the tenant was involved in polluting activities on other sites. The institutional investors in general considered this to be an important consideration.

The tenant's strength of covenant was also considered to be relevant to the decision of whether to include the tenant's environmental performance.

> " ... the ability of the tenant to be able to absorb environment-related losses would be something we would consider important. So if they could not absorb any losses that may occur we would attach greater importance to whether they had an EMS or not. I would have to say that if it was a potentially polluting use and they could not absorb any losses, or we considered them to be a particularly weak covenant, then we may not buy anyway irrespective of whether the tenant has an EMS or not" (Anon Company 4, 1994: 271).

This was a similar approach taken by the institutional investors. Another investor considered that the development of an EMS by a tenant could encourage them to

invest in the property where the covenant was poor. This was on the basis that although the covenant was poor, the EMS would mean environmental liabilities would not occur and so income would not be affected by this issue (Anon Company 1, 1994: 230).

The existence of an EMS was considered to be more important the smaller the tenant occupying a prospective property investment.

> "I think if we had a large company, we would expect these best practices to be in place. So if it was a smaller tenant then the EMS may become more important, simply because you will be looking at tenant risk more closely" (Anon Company 4, 1994: 272).

> "So the tenant's environmental performance would be more important in the smaller company, particularly where there are clear environmental issues" (Anon Company 2, 1994: 246).

Where the lease does not offer adequate protection to the landlord in terms of liabilities for environmental damage, the property companies were divided on whether the environmental performance of the tenant should enter the investment decision-making process. Some investors considered that where the lease did not offer them protection they would walk away from a property investment rather than determine whether a tenant had an EMS (Anon Company 4, 1994: 271-272). Other investors disagreed and remarked that where this situation arose, the tenant's environmental performance would be considered (Anon Company 3, 1994: 259 and Anon Company 1, 1994: 230). Another investor thought that due to the type of property they were buying, they had to consider the issue.

> "This is important to us. And I would qualify this by saying that the type of investments that we are currently buying are 1970s industrial units and, therefore, the lease terms are historic in many respects, and they pre-date the environmental issues. So obviously if we have a tenant in occupation and they follow best practice this is a bonus for us because

perhaps the lease doesn't offer us much protection from environmental issues" (Anon Company 2, 1994: 245).

Property companies, whilst recognising that the introduction of an indemnification into the lease would help reduce the risk of them having to pay for environmental clean up, they were not convinced that they provided any guarantees.

"If we thought the tenant was not worth the indemnity then the EMS would be a good back up, or indeed there was no indemnity it would be a good back up.

But even where a satisfactory indemnity has been obtained I think it is good to see this best practice. Even if the tenant can pay for a clean up, the lease says they should pay for a clean up, you have an indemnification from the tenant against losses, etc. I still do not want the hassle of a pollution incident on my property. It is going to cost me time and money whatever, so I would look for as much as possible to offer me protection against this happening, and the EMS is probably part of this" (Anon Company 4, 1994: 272).

"Depends on the quality of the indemnity. If it was very secure, we may be less concerned, but it is hard to say. I think we would still be interested in their environmental management because it is just bad news if anything happens on our site, irrespective of whether the tenant can pay for it or not" (Anon Company 3, 1994: 259-260).

Where a tenant was carrying on a process which could lead to a pollution incident and the property was situated near to sensitive environmental media, the tenant's environmental performance became more important to consider (Anon Company 4, 1994: 272). One investor remarked that he would be very interested in what the tenant was doing and how it was doing it and that he would want to know,

> " ... if the regulators had been after them beforehand. If they have been after them once, will they do it again? So I think in this situation it will be important for the tenant to have some sort of best practice award. It could make the difference between investing and walking away" (Anon Company 1, 1994: 231).

Some property investment companies considered the environmental performance of a tenant would be more important in a high yielding property situation than where a property offers a lower yield.

> "I would probably be less concerned about the environmental performance of a tenant occupying a property which is low yielding" (Anon Company 1, 1994: 232).

> "Anything which helps to secure the existing income stream of a high yielding industrial property investment must be beneficial. And so if the EMS concept does take off then I can see this having an impact, i.e. they may attract some sort of premium, but this is very difficult to judge" (Anon Company 2, 1994: 247).

With one exception (Anon Company 1, 1994: 232), property companies agreed that the smaller the property portfolio, the more important it was that the tenant's environmental performance was considered.

> "It has less impact on our investment decision-making because a) our portfolio is enormous anyway, and b) the type of property we own is going to be exposed only slightly to this type of risk. So it is not a major problem for us" (Anon Company 4, 1994: 276).

> " ... any property specific risk has to be more important to a smaller type property investor. At the moment, and for a long time, the property industry has been concerned about the financial ability of the tenant, but I am sure that environmental issues will be of growing importance when

> one sees the ways in which the Americans deal with the problems. I think it is inevitable that there will be major litigation on the environment in the next few years, and if you have a tenant which is subject to this litigation occupying your property you could quite easily lose out" (Anon Company 2, 1994: 248).

6:7.4 SUMMARY

It is apparent that the property investment companies interviewed consider the environmental performance of tenants to be relevant to the investment decision-making process at the stock selection level. However, in a similar manner to the institutional investors, it is considered more important to do so where certain investment conditions exist.

Whilst the institutional investors expressed the view that by considering the issue it could be a way, particularly for small funds, to improve investment performance, at least one property investment company expressed the view that the issue was considered because those providing property investment finance were now demanding it. This latter point is certainly supported by the interviews with the banks (section 6:7.7) who are now demanding that greater environmental checks should be undertaken before loans are advanced to purchase industrial property.

Where property investment companies invest in slightly older B2 class property, for example, 1970s and 1980s stock, three reasons have emerged suggesting why they have a greater concern for the environmental performance of tenants. Firstly, the lease will pre-date the environmental issue - providing the landlord with little opportunity to influence the tenant's behaviour. Secondly, these units tend to carry higher levels of environmental risk associated with current land uses. Thirdly, the strength of covenant of the existing tenant is particularly important to the investment worth of the property. Therefore, if environmental problems do undermine the tenant's covenant, it will have a disproportionate effect on value.

6:7.5 CHARTERED SURVEYING FIRMS

Chartered surveying firms act as property investment advisors to the large institutional investors and property investment companies. They also act as "fund managers" by managing property portfolios on behalf of clients, a practice which can involve a number of activities. These activities range from a traditional estate management role, where the retained firm will be responsible for collecting the rents and negotiating rent reviews with tenants, through to the responsibility to buy and sell properties on behalf of the client, and advice in determining future fund strategy and sector allocation. Due to the important role they play in the property investment market, it was considered essential to understand the way in which chartered surveyors were dealing with environmental issues.

6:7.5.1 Fund Strategy

Those surveyors with the responsibility to determine, or advise on, investment strategy and sector allocation, expressed the view that strategies had not been altered because of environmental issues. As the institutional investors and property investment companies remarked, however, substantial changes had occurred in the stock selection process. The environmental risks, although recognised, were not altering (intentionally) the allocation of funds to industrial property, they were instead influencing the stock selection process where it was considered that the risks could be selected out (Anon Surveyor 3, 1994: 311 and Anon Surveyor 5, 1994: 337).

Another surveyor remarked that although strategy had not been altered due to environmental risks,

> "What we have been doing obviously, is look a lot closer at the industrial we have been buying, and we may have not bought industrial properties

that we would have otherwise bought. So the sector allocation may actually have come down because the opportunities are more limited, but we have not consciously reduced our exposure to industrial property" (Anon Surveyor 7, 1994: 369).

6:7.5.2 Controlling Environmental Risk

The surveying firms were in agreement that more inspections and checks were being made by them before they bought property on behalf of clients. The pressure to undertake these inspections had come from the client, future potential purchasers, and the firms themselves recognising that without this advice their service to clients would not be complete (Anon Surveyor 5, 1994: 339, and Anon Surveyor 1, 1994: 279).

The surveyors were also interested in the current activities of tenants occupying property. As with the investors, it was considered that the type of property being purchased would dictate the level of investigation undertaken into the tenant's current activities. Where, for example, a fund required an above average return - which required investing in slightly riskier properties in order to achieve a higher yield - a typical prospective property investment would be a small industrial estate where storage and light industrial uses were being carried on. In this scenario, it was standard practice to investigate the tenant's uses before the decision to invest was made (Anon Surveyor 6, 1994: 356 and Anon Surveyor 7, 1994: 371-372). It was also remarked that the potential for a tenant's use to cause contamination " ... may be one of the factors which prevents us from letting to that particular tenant" (*ibid*: 371).

In those instances where the tenant was deemed to be potentially contaminating, it was considered relevant by some surveyors to investigate the tenant's environmental management practices before the decision to invest was made (Anon Surveyor 1, 1994: 280 and Anon Surveyor 6, 1994: 356). Another surveyor thought that, although it is not yet standard practice to look at a tenant's environmental management practices, it would become more widespread in the future as both

landlords and tenants became aware that it was in both their interests to do so (Anon Surveyor 4, 1994: 331).

In a similar fashion to the institutional investors, chartered surveying firms do not operate a policy of investigating all their properties for environmental risks. There appears to be a number of reasons for this. Firstly, it was considered by some that there were no 'dirty' users in the properties that they managed. "We have predominantly warehouse and distribution property as opposed to B2, so we would not be looking at their uses closely or their management activities because they are not polluting" (Anon Surveyor 5, 1994: 340). Another surveyor considered that the cost of such research would be too great. "As far as existing holdings are concerned, we don't test all industrial properties, because of the costings. But if individual fund managers felt that one or two properties in their portfolio could be risky in environmental terms they would recommend to a client to have them commissioned. So I don't think it could be a blanket 'lets look at all our properties', it will be more selective" (Anon Surveyor 3, 1994: 314). Another surveyor held a very similar view and remarked that the high risk properties within the property portfolio were identified and dealt with.

6:7.5.3 Leasing Practices

There was some variation in the responses which were received from the surveyors concerning this issue. There were those who considered that their leases did not require updating because they did not manage a portfolio which contained any polluting property. Some surveyors considered that the market would not accept too many restrictions within the lease. Others remarked that leases had been updated to reduce their exposure to environmental risk.

> "Our leasing practices have not changed due to this issue. We feel that the existing leases, combined with the activities of most of our tenants, is sufficient protection" (Anon Surveyor 1, 1994: 280).

"As pension fund advisors, we limit our exposure to companies which may not have good environmental practices by tending to have what I would describe as good quality tenants across our portfolio. One would hope that modern well run-companies will have parameters which will reflect a decent use of the property. I think we would be more concerned if we were specialising in high-yielding industrial property where the practicalities are you have got small companies, or companies which may be dealing in very old properties, and they may not have enough money to spend on quality control, then the risk would be greater. The kind of institutional-grade property that we transact with is not so much of a problem I would imagine. But you never know the risk might be lurking there" (Anon Surveyor 3, 1994: 315-316).

"We will not normally want to restrict the user covenants unduly because it has an impact on values. And our restrictions that we do have will tend to reflect planning restrictions rather than environmental considerations" (Anon Surveyor 3, 1994: 315).

"The obvious problem with doing this of course, is that you will affect your performance when you come to the rent review" (Anon Surveyor 7, 1994: 373).

Other surveyors argued that leases had been updated (Anon Surveyor 5, 1994: 341) and it was remarked that new updated leases were a way of controlling tenants in an attempt to reduce the prospect of environmental liability developing on site. This was to be compared with the older style leases where it was considered difficult for the landlord to be able to require the tenant to conform with environmental best practice (Anon Surveyor 4, 1994: 329-330).

6:7.5.4 Warranties and Indemnities

There was common agreement amongst surveyors that vendors were very reluctant to agree to any kind of warranty or indemnity concerning the state of the land, and it was usual for purchasers to have to undertake their own inspections (Surveyor 5, 1994: 342 and Anon Surveyor 2, 1994: 301). Concerning the issue of warranties from tenants during the term of the lease, the surveyors were of two opinions. There were those who thought that the traditional schedule of dilapidations would cover the landlord against any environmental damage caused by the tenant (Anon Surveyor 7, 1994: 375), and others who considered that, particularly in the future, they would be requiring an indemnity from the tenant to yield up the property in the same environmental state as when it was let out to them (Anon Surveyor 3, 1994: 317). Alternatively, they would require a warranty from the tenant to ensure that they would only discharge the chemicals they were supposed to discharge into drainage systems (Anon Surveyor 6, 1994: 359).

6:7.5.5 Environmental Management

From analysing the interview and questionnaire responses, surveyors were also examining the issue of environmental management before making industrial property investment decisions. One surveyor did not think the issue was of importance because they managed funds where the industrial element was dominated by B8 property as opposed to B2 type units (Anon Surveyor 1, 1994: 282). Another surveyor, although remarking that they did not consider the issue at the moment, acknowledged that they " ... probably should ... " (Anon Surveyor 7, 1994: 376).

Other surveyors expressed the view that the environmental performance of a tenant would enter the stock selection process, particularly under certain investment conditions. Some thought that where potentially polluting uses were carried on, the demonstration by the tenant of sound environmental practices could encourage them to invest rather than turn the investment down.

> "The environmental management system may be a factor which could persuade us to invest rather than walk away" (Anon Surveyor 6, 1994: 364).

Another surveyor remarked that where an environmental audit had been undertaken and had illustrated that the tenant is carrying out activities which are potentially polluting

> " ... but they are doing them very well and in a manner which is in accordance with best practice then we would still go ahead with the purchase" (Anon Surveyor 3, 1994: 317).

It was also considered that the environmental performance of a potentially polluting tenant would influence whether a property was marketable or not (Anon Surveyor 2, 1994: 303).

The same surveyor expressed the view that the environmental management system concept should be considered along-side other factors which could reduce the prospect of landlord liability for environmental damage. For example, where the tenant was a particularly high risk, surveyors should look for protection in the strength of covenant and in the wording of a modern and well-constructed lease. If these factors were not present, then it is unlikely that the surveyor would advise the client to purchase. However, where the tenant carries lower levels of environmental risk it appears that the environmental performance of the tenant would influence their decision to invest (Anon Surveyor 2, 1994: 306). See also Anon Surveyor 4, 1994: 332, where it was argued that the environmental performance of a tenant becomes more important where the lease offers less protection.

Whilst not every surveyor interviewed had heard of BS 7750, some had come into contact with it and expressed some views. On the whole they were very positive.

> "If we can say that this standard is an industry benchmark, and this tenant is complying with it, then that has to be a property which will offer us

> less of an environmental risk than the other ... property occupied by a tenant which does not comply to this industry benchmark" (Anon Surveyor 3, 1994: 319).

One surveyor concluded that the certification process of the standard would ultimately determine whether the property investment market would be prepared to accept it and consider it in investment decisions.

> "I think it will depend on how the standard is accepted throughout industry, what sort of press has it received. I am also interested in the certification process and the auditing of the tenant's system once it is up and running. If the tenant just gets certified and then for ever more audits its own environmental performance, then it will carry less weight. However, if the tenant has to have external independent assessors in on an annual basis, then it is far more likely to be taken into account in the investment decision-making process" (Anon Surveyor 6, 1994: 361).

6:7.5.6 Circumstances under which the environmental performance of a tenant should enter into the investment decision-making process

In the same manner as the financial institutions and the property investment companies, the surveyors considered that where a tenant was capable of causing a pollution incident on site, it was important to include the tenant's environmental management practices in the investment decision (Anon Surveyor 5, 1994: 345 and Anon Surveyor 1, 1994: 284). Most of the surveyors interviewed also considered that where the tenant had the potential to cause environmental problems on other sites, the issue was also one which was necessary to consider. However, it does not appear that surveyors are actually considering the latter issue before investment decisions are made.

> "I don't think that at the moment the environmental performance of a company having the potential to impact on its financial standing, I don't

> think that kind of information is available. We will always look at the financial statements of a company, but this will not tell us that it has environmental problems. So it is tough to make these decisions" (Anon Surveyor 3, 1994: 324).

> " ... in practice it would be very difficult for us to even know what the other activities were on the other sites, so at the moment I don't think we would do this, but I take your point" (Anon Surveyor 7, 1994: 379).

It was also remarked that where the property, subject to the investment decision, was situated in a secondary location with low tenant demand, investors should become more interested in any potential off-site liabilities that can prevent the tenant from trading (Anon Surveyor 3, 1994: 324).

Surveyors also expressed the view that where a tenant is financially weak, the examination of its environmental performance, both on and off-site, became more important.

> "Joe Bloggs who occupies a corner of our industrial estate who may not be able to pay for any damage, then the existence of something like an EMS would become very important. Because if something did happen and they can't pay for it, we would end up with the bill. So, yes, it would be more important here" (Anon Surveyor 5, 1994: 345).

> "I would be expecting a strong covenant to have a system, or to be able to afford damages. A weaker covenant will need all the protection he can get, and environmental management will be one of these things" (Anon Surveyor 7, 1994: 380).

The lease was also very influential in determining whether surveyors included the existence of an EMS in the investment decision-making process. In a similar fashion to the institutional investors and property investment companies, the surveyors would either attach more importance to the tenant's management practices or they would

decide not to invest in that property where the lease is poorly written (Anon Surveyor 5, 1994: 346 and Anon Surveyor 7, 1994: 381). However, it has also been possible to determine two other factors which have a bearing on this decision.

Firstly, where the tenant activities pose a certain level of environmental risk which is not considered to be too high, the

> " ... environmental performance could come into it, depending on how much risk our client was prepared to take on ... if that tenant could show us an industry-wide standard and say 'OK, if we do everything wrong there could be a few problems, but look at our track record, look at our commitment', then I think that would influence us and we would be prepared to take a view" (Anon Surveyor 2, 1994: 306).

Secondly, although in the majority of cases they would decline to invest in the property where the lease did not offer complete protection to the landlord, one firm of surveyors mentioned that they would consider the environmental performance of the tenant, and proceed upon satisfactory results, where the client really needed " ... that particular type of property in that location" (Anon Surveyor 6, 1994: 363).

Where potentially polluting tenants were situated in areas that were sensitive to environmental damage, the surveyors were agreed that the environmental performance of a tenant would become more important (Anon Surveyor 5, 1994: 346 and Anon Surveyor 3, 1994: 321 and Anon Surveyor 7, 1994: 381-182). One surveyor considered the issue was more important under these circumstances but did not think it was actually being carried out in practice at the moment (Anon Surveyor 1, 1994: 290).

As with the financial institutions and investment companies, the size of the tenant influenced whether the surveyors considered these types of issues. It was remarked that " ... if a tenant was capable of causing a few environmental problems, and it was a small tenant, such a system could be quite attractive to us" (Anon Surveyor 6, 1994: 365).

Surveyors were of the view that high yielding property probably reflected the prospect of environmental risk already. The fact that a high return was required would be a function of the occupying tenant, the location, existing and anticipated tenant demand and many other factors, which would include the tenant's potential to cause pollution and its inability or otherwise to pay for cleaning it up. In a situation where investors are buying such property they are accepting the high risk

> " ... so anything which can reduce this risk, say reduce the environmental element of it, will be welcomed by investors. It will be something they can tell the trustees they have looked into, and so it becomes an attractive high risk investment, because it has dealt with an aspect of overall risk" (Anon Surveyor 1, 1994: 292).

It was thought that the EMS would not have much of an impact on low yielding property. These properties were bought for their low risk, so where an unquantifiable is introduced - for example, a tenant occupying the property which has the potential to cause environmental damage - the yield would increase since it would cease being a low risk investment. The introduction of an EMS was not considered to be enough to encourage investors to buy the property without discounting for the higher risk, particularly at such an early stage of environmental management system development.

The surveyors, along with the other interviewees, remarked that the issue of considering the environmental performance of tenants, being a specific risk factor, would be more relevant to smaller funds since they find it difficult to diversify away specific risk factors. However, the surveyors were very reluctant to accept any levels of environmental risk into the portfolios managed on behalf of small funds.

> "So it could be that the larger funds actually take more of an interest in the environmental performance of occupying tenants, because they are prepared to take on the properties in the first place which will benefit from them more. I would be very reluctant to take on any property into

> the smaller funds where I thought the tenant of which could cause problems even if they had a superb environmental attitude and management. However, if I was deciding on acquisitions for a larger fund I could afford to be influenced by such factors, and the environmental performance of the tenant may well be a necessary consideration" (Anon Surveyor 5, 1994: 347).

Another surveyor remarked that the procedures pursued by them in offering advice to funds did not differ depending on their size. It would be inaccurate, therefore, to say that they considered the site-specific factors in greater detail for the smaller funds than they did for the large funds (Anon Surveyor 3, 1994: 323).

6:7.6 SUMMARY

On the whole, the surveyors interviewed expressed similar views to the other investors. They also consider the environmental performance of tenants to be relevant to the investment decision-making process under various circumstances.

6:7.7 BANKS

The banks were either interviewed, or a postal questionnaire was sent out to those not prepared to be interviewed. The aim of this part of the research was to acquire an understanding of the banks' attitudes towards environmental risk when lending to property investment companies, and, in particular, to determine whether they were concerned with tenant activities occupying industrial property used as security.

Each bank that was interviewed or from whom correspondence was received, remarked that their attitude to lending had changed due to environmental issues.

> " ... it has made the whole banking market stop and think ... "The attitude has changed in that it is another area of risk which we will address" (Anon Bank 4, 1994: 423).

> " ... our attitude to lending has changed because now we are having to look at environmental issues as part of our standard lending criteria ... " (Anon Bank 1, 1994: 385).

The main concerns of the banks were concentrated in three areas. Firstly, they were concerned that the UK and European legislation would expose them to liabilities for environmental damage caused by other parties (Anon Bank 3, 1994: 415). Secondly, that the financial standing of a property investment company could be undermined by severe environmental problems, therefore, leaving the banks' interest payments at risk (Anon Bank 1, 1994: 396). Thirdly, there was concern over the value of the banks' security irrespective of whether they were found liable for a pollution incident.

> "If we are not liable but the value of our security is appreciably reduced, then we are in only a limited better position. We don't want tenants on the estate doing whatever they like, whenever they like, however they like. We think that poses risks to us" (Anon Bank 3, 1994: 415).

There was, therefore, recognition on the part of the banks that industrial tenants could cause environmental problems that could impact on the value of their security. This has led the banks to demand warranties from borrowers that prohibit the carrying on of certain uses within the industrial property taken as loan security. Most banks appeared to use the original section 143 registers to identify potentially contaminating uses (Anon Bank 2, 1994: 405-406 and Anon Bank 3, 1994: 414-415). The head of an environmental risk unit at a leading UK bank remarked that any property investment company letting industrial property should be asking whether their tenants have developed environmental management systems.

> " ... it is just not sufficiently good management for a company to let someone in who they don't know what they are doing especially when they themselves eventually have the potential tab to pick up if something goes wrong" (Anon Bank 1, 1994: 395-396).

In the context of the bank potentially becoming liable for environmental damage - whilst acknowledging that this liability may be twice removed - the same respondent warned that

> " ... we would not want to lend to someone who wasn't actually doing their own environmental homework and research in the first place on their own clients" (*ibid*: 396).

Due to the perceived increase in potential environmental liabilities, the banks are beginning to introduce policies to reduce their exposure to such risks. As discussed above, this can include, for example, restricting the types of use permitted to be carried on within properties used as security and requiring that tenants comply with environmental legislation. On the whole, banks were very aware of the environmental management concept and it was remarked that such a system, where it was successfully developed by tenants, would address some of the environmental concerns that they had.

Where higher levels of environmental awareness were displayed by tenants, it was remarked that funding would be more likely to be available than where low levels of environmental awareness existed.

> "Well I think we would be more likely to fund where tenants were practising this standard. If you are looking at, say two tenants carrying on identical processes on a site one has 7750 in place and the other has not, and that's all the information you have, then you will go for the one with the EMS" (Anon Bank 4, 1994: 426). (See also Anon Bank 2, 1994: 408-409).

> "It shows a greater degree of tenant concern towards environmental issues and in theory at least should reduce the bank's risk exposure" (Anon Bank Questionnaire Response, 1994).

Another bank remarked that apart from the tenant's use of the property, whether or not the EMS concept affected the lending decision would depend on the covenant of the tenant.

> "Take, for example, an industrial property, occupied by BP Chemicals. Now there you have a very strong tenant and, as I understand it, he would be responsible for anything in the first instance. Given that you have the covenant of BP, I think the risk to the banker is completely unaffected by the introduction of good environmental management practices, or what BP might say they are doing. Because they are responsible, and they can afford to put something right if it goes wrong ...
>
> Alternatively, if you had a weak tenant carrying out one of the polluting uses then I would say that is a considerable risk to start with, and we would be looking for anything to reduce it. But it could be still too risky for our liking. We may still decide not to take it on. So perhaps it will have a larger impact on the middle ground, you know, the average tenant, and in this situation it would certainly improve our view if he was adopting proper procedures. But of course this would only be one factor in the overall risk assessment" (Anon Bank 2, 1994: 407).

In the future, it also seems possible that the cost of finance to property investment companies could be influenced by the presence of EMSs. Some banks thought that the concept would impact on pricing in the future after it had had time to prove itself (Anon Bank 4, 1994: 427). An independent assessment of the system on an annual basis would also be a requirement of at least one bank (Anon Bank 3, 1994: 417).

It was considered that the inclusion of the EMS concept in the pricing of a loan in the future would depend upon how well the concept is accepted by property investors - does it make an industrial property more marketable - and how the development of environmental legislation proceeds over the next few years.

> "If the fact that a tenant had an environmental management system in place and this makes it more saleable in the market, then that I would guess have an impact on pricing.
>
> "So depending on how things pan out, the cost of finance may become more directly related to the environmental performance of tenants, and indeed buildings" (Anon Bank 4, 1994: 427).
>
> "Presently, environmental concerns are important, but not always critical. As legislation develops, and obligations on bankers become greater, this could impact on future pricing arrangements" (Anon Questionnaire Response 1994).

6.8 SUMMARY

The results presented in this Chapter represent a significant advancement in the understanding of environmental risk and property investment. The property inspections and the subsequent expert views offered by the interviewees, has provided empirical evidence indicating that a tenant's poor environmental management practices can impact upon the level and variability of return offered by a property investment. This is a significant finding in itself and supports the arguments put forward in Chapter Four.

The environmental auditor interviews confirmed that the land use planning system is not the most effective method to identify environmental risk, and that by treating the tenant as the important unit of analysis property investors are less likely to overlook potential environmental problems associated with current land uses. The Chapter also

highlighted those factors which appear to influence the level of environmental risk associated with a tenant's activities. The interviews indicated that it is not just the use to which the property is put, but the way in which tenants carry on their activities also affects environmental risk. The overwhelming conclusion of the environmental auditors was that the implementation of an EMS by an occupying tenant will significantly reduce the investor's exposure to this type of environmental risk. Chapter Seven further investigates whether EMSs can reduce the prospect of landlord liability.

The property investors interviewed had not altered their investment strategy towards property (or industrial property in particular) due to perceived environmental risks. Changes, however, have been made at the stock selection level and included avoiding properties that were perceived as environmentally risky. It was not surprising, therefore, that all investors considered it necessary to undertake some form of environmental investigation before acquiring property. These investigations always included a desk-top study, and sometimes involved a site investigation.

It is also apparent that property investors are beginning to recognise that there are environmental risks associated with an occupying tenant's current activities. Those investors with a larger allocation to B2 property and/or investors who had suffered losses as a result of a tenant's poor environmental performance in the past, were more likely to require an investigation into a tenant's activities prior to purchasing a property.

Amongst all property investment groups, it was well recognised that leases could be, and often had been, updated in order to encourage environmental best practice on the part of the tenant. Due to the potential impact upon rent review, it was considered inappropriate to introduce stricter user covenants and restrict assignments, instead the general provisions within the lease were updated in order to ensure tenant compliance with environmental legislation.

The use of warranties and indemnities in relation to environmental risk seemed to be quite limited. Whilst most investors and advisors sought them, it was very unusual for them to be received.

In relation to the environmental management practices of tenants, and the circumstances under which the concept was considered relevant to the investment decision-making process, the following provides a summary of the main findings. Where, either the type of property, or the type of tenant, suggested that potentially polluting uses could be carried on, it was considered necessary to investigate the tenant's environmental management practices. Investors also expressed concern in relation to tenants' environmental management practices where they carry on polluting processes off-site. Where the strength of tenant covenant is weak and the lease offers only limited protection to the landlord (in environmental terms), an EMS may mean the difference between investors buying a property or walking away.

The type and size of property portfolio also seems to influence the level of importance attached to the tenant's environmental management practices in the investment decision-making process. Due to the perceived benefits of portfolio diversification, it was generally considered that where an investor held a large property portfolio specific risk factors (such as tenant environmental risk) would be less important to portfolio investment performance. This would tend to support the arguments raised in Chapter Three, where it was contended that although specific risk factors may have been underestimated in their impact on portfolio performance, they are likely to impact more heavily on smaller property investors. Where very few industrial properties were held within a portfolio it was also considered less important to consider the environmental management practices of tenants.

It is argued that through the interviewing of environmental auditors and property investors it has been possible to understand their concerns in relation to environmental risk, and in particular, tenant environmental risk. This qualitative data has enabled the depth of understanding of environmental risks in the context of property investment risk such as to provide a significant contribution to knowledge in

this field as contained in the summary above, and in the conclusions in Chapter Eight.

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CHAPTER SEVEN

7:0 ENVIRONMENTAL MANAGEMENT SYSTEMS AND PROPERTY INVESTMENT

This thesis has provided evidence, through the examination of relevant literature and by undertaking a major empirical study, that the environmental performance of an occupying tenant has the potential to impact upon property investment returns. The following Chapter concentrates specifically on EMSs, and investigates further whether the adoption of such a system will reduce the environmental risks faced by property investors. In the light of the preceding Chapters, two points summarise the considerations which follow.

- The type of property held by investing institutions and property investment companies can be occupied by tenants who are subject to various important environmental legislation. It is becoming increasingly important that they have procedures in place to comply with such legislation, both at the present time and in the future. Failure to comply can result in fines, statutory or civil clean-up liabilities, imprisonment of directors, closure of the offending facility and highly critical media coverage for causing pollution incidents. This can have a serious impact on the tenant's earnings potential and, therefore, on his ability to continue to pay a rent to a landlord, with the obvious repercussions for the income security of property investments.

- Where environmental damage occurs, the landlord may be liable for statutory fines or statutory or civil clean-up costs. Again such costs can have obvious impacts upon the investment performance of affected property.

7:1 EMS BENEFITS

In this context, it is important to outline the main benefits which the literature indicates can be obtained by implementing an EMS.

1. The avoidance of environmental mistakes, such as pollution incidents, which may involve heavy civil or criminal liabilities.
2. Cost savings from reducing consumption of resources and production of waste by conservation and recycling initiatives.
3. Cost savings from anticipating future legislation and regulatory requirements and being able to plan necessary environmental improvements.
4. Improved relations with regulatory authorities.
5. Genuine product/service differentiation, leading to increased market share.
6. Ability to attract and retain staff.
7. Increased employee awareness of environmental policies and responsibilities.
8. Improved relations with stakeholders, such as banks, insurers and corporate/public clients, who are all displaying an interest in the environmental performance of companies.

(Adopted from Clough, (1993), British Standards Institution, (1991) and Pearson *et al*, (1992)).

The following examines EMSs in the context of compliance with legislation and income security.

7:2 EMSs AND COMPLIANCE WITH LEGISLATION

One of the main arguments supporting the contention that the implementation of an EMS can enhance the risk profile of a property investment, is that it will reduce the risk of environmental incidents taking place. In order for this claim to have substance, it must be shown that tenants who have developed such systems are less likely to transgress legislation and cause environmental damage.

Much of the impetus for this work into EMSs stems from an acknowledgement that environmental risks associated with a tenant's current activities actually exist. In the past, the environmental performance of a tenant did not impact upon the investment returns enjoyed by landlords because environmental pressures were less significant, and the regulatory regime almost non-existent, compared to the plethora of legislation which has been introduced in the past five years.

However, since any rational approach to investment involves a careful appreciation of the legal regime which is likely to govern the investment until it has been finally realised (McCracken, 1992), property investors need to acknowledge this risk, and learn how to deal with it. David Neuberger was succinct in his views when describing the changing situation in this year's special CPD lecture.

> "Land and buildings are liable to be physically polluted by what is physically deposited or built on them, and by whatever physical process is actually being undertaken in or on them. One does not have to be a subscribing member of Greenpeace to see the desirability of environmental protection legislation, and the inevitability of it being directed, at least in part, to owners and occupiers of land and buildings" (Neuberger, 1995: 115).

7:2.1 COMMENTATORS

Due to the regulatory regime which now governs property, it is becoming increasingly important for owners to ensure that their tenants do not transgress environmental legislation and, in particular, the clean-up powers of regulatory authorities provided under the Water Resources Act 1991 and the Environmental Protection Act 1990 (Deanesly and Papanicolaou, 1993).

The current signs are that most external parties regard the development of BS 7750 as a positive contribution to improving and benchmarking the environmental performance of companies (Gilbert, 1994). It has been acknowledged that the

standard does not provide all the answers to the vexed issue of sustainable development (*ibid*), but it is widely accepted that it will reduce the prospect of environmental damage occurring. Cahill (1992: 172) argues that " ... focusing on management systems can result in long-term environmental compliance improvements ... ". Burnett-Hall (1991: 165) has also suggested that in order to avoid paying fines resulting from failure to meet relevant legislation and regulations, companies will have to ensure that their " ... management systems for environmental compliance are and stay in excellent working order". Garbutt (1992: 7) has argued that due to the limited extent that environmental risks can be alleviated by insurance " ... environmental management performance assumes vital importance".

7:2.2 COURTS AND REGULATORS

The courts and the statutory regulators also view the concept of environmental management as a useful tool in helping organisations comply with environmental legislation. The NRA has stated that groundwater pollution can be prevented by measures such as the bunding of storage tanks and by " ... specific management practices" (NRA, 1992: 14). Following the prosecution of an engineering company for causing polluting matter to enter controlled waters, the NRA suggested that staff training and better house-keeping would be the most effective means of improving the company's environmental performance (ENDS, 1994a). The NRA seemed to prefer this approach to the "technical fix" the organisation intended to adopt. Staff training and house-keeping are obviously inextricably linked with environmental management practices (see section 7:4.3 below).

HMIP have suggested that certification to BS 7750 is likely to reduce the need for inspections at premises to check compliance, and they have also offered the prospect of an associated reduction in the level of charges under integrated pollution control (ENDS Report, 1994b).

In an important case which reconfirmed the principles under which companies may be criminally liable for the illegal actions of their employees, a court ruling indicated

that environmental management will help prevent pollution incidents. National Rivers Authority v Alfred McAlpine Homes East Ltd[1] concerned a water pollution incident for which the local site agent accepted responsibility, but involved the NRA in prosecuting the company directly. Under the principle of vicarious liability, the Divisional Court decided that the company were responsible for the pollution incident. In a passage which has been described as strengthening the hand of those advocating environmental management systems (ENDS, 1994c), Mr Justice Morland found no reason why Parliament should not, as a matter of policy, have placed on employers the responsibilities of environmental protection. He suggested that they could do this by training and supervising employees, as well as maintaining the highest standard of maintenance of plant.

Other commentators have suggested that the House of Lords' decision in the Cambridge Water Company case[2] provides clear evidence that the development of an environmental management system will provide a defence against civil claims for environmental damage. The judgement established that a company will not be strictly liable for past pollution if it was not reasonable to foresee the consequences at the time the pollution occurred. However, there can be little doubt that " ... a company that is currently polluting because it is failing to carry out environmentally aware practices will be liable for current and future pollution, since it will be judged by today's standards (Ball, 1994). Therefore, unless " ... companies demonstrate that they had good environmental management systems in place at the time of a pollution incident, courts are likely to be unsympathetic" (Independent, 1993). It should be noted that in some countries, notably the US and Canada, the documentation which accompanies an EMS provides a defence against prosecutions (Harris, 1993). Napier (1993) also considers that adopting formal EMSs can minimise the risk of civil liability arising in the future.

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[1] *National Rivers Authority -v- Alfred McAlpine Homes East Ltd,* Divisional Court, 26th January 1994.

[2] *Cambridge Water Company -v- Eastern Counties Leather plc* [1994] 2 WLR 53.

7:2.3 THE PROPERTY MARKET

The researcher, along with various commentators in the UK property market, has argued that a tenant's environmental performance is an important factor to consider before deciding to purchase property. See in particular Aylwin (1992), Turner *et al*, (1993a), Turner *et al*, (1993b), Turner *et al*, (1994a), Turner *et al*, (1994b), Moss (1993), Symes (1993) and Pagella *et al*, (1993).

Although awareness of EMSs amongst the property profession and their use by landlords as an appropriate tool to reduce their potential exposure to environmental liabilities, is not particularly refined, evidence does exist which suggests that landlords are beginning to accept that the concept could have a role to play in the management of their property assets.

For example, Coventry City Council has made attempts to improve the environmental performance of tenants occupying one of its industrial estates (Local Government Management Board, 1993). One of the ways which this process is being introduced is by applying " ... lease conditions for city council controlled property to secure better environmental performance" (Coventry City Council, 1993). The council have recognised that by seeking the best environmental standards in their properties, they will mitigate the council's liabilities for environmental damage caused by activities at their premises (*ibid*). Coventry City Council has, therefore, decided to encourage tenants to develop EMSs within their properties, and are using the lease as a medium to achieve this.

Alternatively, some landlords are deciding to examine a tenant's environmental performance before agreeing to let property to them. Increasingly, leading environmental law firms are recommending the use of landlord questionnaires, which invariably elicit information relating to the tenant's potential to cause environmental damage. These make clear that " ... documentation relating to [the tenant's] internal environmental management systems ... " are important in assessing environmental risk (Tromans and Turrall-Clarke, 1994: 560 - 561, see also Deanesly *et al*, 1993).

Two important reports published by the Royal Institution of Chartered Surveyors (RICS) in the past two years have also recommended that practising surveyors take into account the environmental performance of occupying tenants and, more specifically, consider the concept of environmental management. Since October 1993, the Manual of Valuation Guidance Notes (The White Book) has provided advice to chartered surveyors relating to environmental issues. The relevant guidance note, Environmental Factors, Contamination and Valuation (RICS, 1993), makes clear that

> "Occupiers, landlords and lenders all need to ensure that any contamination arising from the current use of the site is identified by inspection and/or enquiries of site management and that it is recorded (*ibid*: 3).

This illustrates two important points which are of direct relevance to this thesis. Firstly, the RICS are concerned that the current use of a site can cause environmental problems - this issue was addressed in Chapter Four, and in relation to the tenant case studies presented in Chapter Six. Secondly, the Guidance Note indicates that environmental problems associated with the current use of the property are related to the management practices of the tenant.

A separate RICS Guidance Note, published earlier this year, entitled Environmental Management and the Chartered Surveyor (RICS, 1995), went even further and argued " ... that all chartered surveyors should consider the principles of environmental management ..." (*ibid*: 23-24).

7:2.4 EMPIRICAL WORK

The recognition, by various types of professionals, - environmental auditors, environmental lawyers and property investors - that EMSs reduce the risk of environmental damage occurring, was evident in the empirical work of this thesis.

Property investors are taking heed, at least to some extent, of the advice put forward by the RICS Guidance Notes. In particular, where property investors consider that the occupying tenant is capable of causing environmental damage, where leasing provisions do not offer the landlord complete protection and where the tenant covenant is not particularly strong, many property investors are looking at the issue of environmental management. For instance, one surveyor offering investment advice asserted that,

> "If we can say that this standard is an industry benchmark, and this tenant is complying with it, then that has to be a property which will offer us less of an environmental risk than the other property occupied by a tenant which does not comply to this industry benchmark" (Anon Surveyor 3, 1994: 319).

Overwhelmingly, the lawyers expressed the view that where a tenant had developed an EMS, fewer risks were posed to the landlord from an environmental perspective.

> "If the tenant has got 7750 accreditation he is more likely to have assessed the risks involved in his activity, [and] therefore, taken steps to mitigate those risks, which would mean that the landlord is more likely to get the property back in a reasonable state" (Anon Lawyer 1, 1994: 96).

> "If you go for 7750 or EMAS, then if I was a landlord I would much rather have a tenant that tried to do that than one who didn't" (Anon Lawyer 4, 1994: 144).

The environmental auditors were also very supportive of the EMS concept and its ability to reduce environmental risks faced by landlords. Section 6:6.4 in the previous Chapter, indicated that the level of environmental risk is not only determined by the uses to which property is put: it is also heavily influenced by the management of that use. The auditors considered that the development of an EMS was particularly useful in delivering improvements in employee awareness and

training, which in turn would reduce the chance of environmental liabilities occurring.

7:3 EMSs AND INCOME SECURITY

Another main argument underpinning this thesis is that where tenants have developed EMSs, it is feasible that they will enhance their competitiveness and reduce costs. Since the financial health of a tenant will impact on the risk of a property investment, the EMS concept also needs to be examined in this context.

7:3.1 COMMENTATORS

Over the past few years, various commentators have argued that environmental management is an important part of company strategy, and without it, companies will be unlikely to perform to the best of their ability. Lee and Green (1994) argue that environmental management is no longer optional, and that it is a vital subject for business management. Friedman (1992) suggests that because lawmakers and consumers are showing an ever-increasing concern about the green reputation of companies, environmental management is vital to the survival of almost any business. He goes on to argue that

> "Firms that do not make any effort to manage environmental affairs will manage poorly and incur great costs" (*ibid*: 25).

Welford and Gouldson (1993: 10) argue that companies which cannot display a high level of environmental performance

> " ... will find it increasingly difficult and expensive to attract and retain investment and insurance for their operations".

Porter (1992: 133) has argued that "The conflict between environmental protection and economic competitiveness is a false dichotomy, and stems from ... a static view of competition". Kiernan suggests that the basis of corporate competitiveness has shifted progressively from price and volume to quality, then to speed, and finally to flexibility, responsiveness and mass customisation. Business, he argues, is now poised on the threshold of a fifth mega-shift, this one arguably the most profound and likely to be the most enduring of all. "This time a company's *environmental* performance will be increasingly central to its competitiveness and survival" (Kiernan, 1992: 133). Features appearing in the financial journals support this view, arguing that if companies are to compete in the 1990s, they need to become 'clean and green' (Coyle, 1992).

This is the experience of many companies which have recently finished a twelve month pilot programme implementing BS 7750. Those that have started to develop EMSs are reporting that relationships with insurers and financiers have improved since they are " ... less chary of hidden environmental liabilities". (Carty, 1993: 41). Other companies have concluded that

> " ... while they may not increase profits through going green, they most certainly will lose money by *not* doing so - through increased waste disposal costs, catch-up costs, costs of complying with significant legislative changes in a hurry, changes in public opinion heavily penalising what is now unacceptable behaviour ..." (Gray and Collison, 1991: 21).

For a comprehensive list of companies which have enhanced their environmental performance, and improved profits at the same time see Pearson *et al*, (1992), Smart, (1992) and Schmidheiny, (1992).

7:3.2 EMS SURVEYS

A survey by the Advisory Council for Business and the Environment has shown that companies can reduce the costs of finance and insurance by adopting environmental management practices (ACBE, 1992).

The 18 month pilot study of BS 7750, referred to above, has clearly shown that these benefits *can* materialise. United Engineering Steels claim that the development of their EMS has satisfied increasingly discerning customers about their environmental performance (ENDS Report, 1993). Cottam (1994) also reports on the experience of another company which has reduced costs during the pilot programme. Northern Telecom, a leading global manufacturer of Telecommunications equipment, claim that the benefits they have obtained from the Standard are considerable.

> "We believe that our EMS is helping to improve efficiency and reduce cost. It demonstrates to our customers that their environmental priorities are also our priorities ... " (Northern Telecom, 1994: 24).

Other surveys have shown an increasing interest in EMSs by the corporate world. In 1993 the Institute of Directors (IoD, 1993) found that growing numbers of British firms were addressing environmental issues at board level. Amongst the reasons provided by respondents for adopting environmental policies in this, and other surveys (Hillary and Millar, 1994), was to assist with legal compliance, risk management and the identification of cost savings.

A survey of 200 tenants, undertaken in 1993, also indicated that they perceive there are positive benefits to be gained from improving their environmental performance (Turner *et al*, 1994c).

The fact that companies believe they can gain commercial advantages from developing an EMS, perhaps also explains why there has been such an interest in the development of the BS 7750 standard. It would be very surprising if companies were

establishing EMSs if they considered it was not in their best interests to do so. This also supports those who argue the costs of setting up an EMS are not prohibitively expensive. Welford (1992) and Hadley (1993) both argue that such costs are quite modest and will pay for themselves many times over.

7:4 BRITISH STANDARD 7750

Having established that an increasing body of opinion considers that an EMS can deliver certain benefits to tenants, and indirectly to property investors, it is now appropriate to examine BS 7750 in detail in order to understand how such a system can reduce the risk of a property investment.

Although it is the synergy effect of the whole system which will bring about the benefits to property investors, it is necessary to highlight certain aspects of BS 7750. The most important parts of the standard are considered below.

7:4.1 COMMITMENT AND PREPARATORY REVIEW

Although a commitment from the organisation, towards improving its environmental performance, and the preparatory review, are not formal parts of the EMS under BS 7750, both are nonetheless important in any attempt to become certified under the system. Only tenants with genuine commitment to improving their environmental performance will be able to achieve the standard, and property investors should not ignore the fact that a tenant is prepared to accept the changes that such commitment will inevitably bring about.

The preparatory review requires a tenant to investigate the key areas of environmental legislation with which it is required to comply. The EPA 1990 and WRA 1991 will be prime candidates, although other pieces of legislative and regulatory control are likely to be investigated. The fact that a tenant has investigated and compiled a register of pertinent legislation does not, of course, guarantee the

property investor that they will be complied with. However, it is a step in the right direction and once the other parts of the system have been given attention, it is very unlikely that transgressions will result.

To register every one of its environmental effects would be an impossible, and quite probably a meaningless, task for any tenant to attempt. This was the main criticism of the original draft standard which was subject to the pilot programme. It was argued that the tenant would spend too much time investigating all the environmental effects it may have, but over which it did not have any control. The requirement that tenants will need to investigate and compile a register of significant environmental effects is probably to the advantage of the property investor. The tenant will, therefore, be aware of environmental effects most likely to result in legal action and potentially damage their ability to pay a rent to a landlord. This prepares the tenant for the Environmental Effects Evaluation and Register which is subsequently used to set the tenant's publicly available objectives and targets. This should also instil confidence in the host of other stakeholders concerned with the environmental threats facing the tenant.

The preparatory review will also include an examination of existing environmental management practices. This should provide the tenant with the opportunity to set policies in place to improve on them in preparation for the development of a comprehensive set of practices which will be required for eventual certification to the standard. This provides a useful opportunity for the tenant to assess its strengths and weaknesses in relation to environmental management and highlight areas of significant improvement which may be required.

The assessment of feedback from previous incidents that may have resulted in environmental damage, and possible legislative action by regulatory bodies, is a useful exercise for any tenant to undertake. Learning where mistakes were made in the past should provide useful information to help avoid them in the future. Where tenants have gone through this process, property investors should feel more comfortable that incidents are less likely to occur in the future.

7:4.2 ENVIRONMENTAL POLICY STATEMENT

The writing of an environmental policy statement provides the tenant with the opportunity to express its environmental credentials to a growing number of interested stakeholders. This statement requires the tenant to commit itself to a programme of continuous improvement in environmental performance based on the goals it sets out within the statement. A well written policy statement, which addresses the tenant's significant environmental effects, will instil confidence in those parties which have an interest in the tenant's environmental performance.

Such stakeholders are no longer represented by fragmented pressure groups with little or no influence on the long-term success of companies. Increasingly banks and insurers are demanding that certain environmental standards are met, and the tenant's environmental policy statement, particularly where it is supported by certification to a recognised standard of environmental management, is a way of conveying the information which they require.

The information required to compile the environmental policy statement, particularly since it provides for the publication of environmental objectives, is increasingly demanded by the growing body of companies who themselves have made a public commitment to improve their environmental performance. Since a standard such as BS 7750 requires that suppliers are questioned on environmental performance - see section 7:4.6 below - tenants are increasingly expected to provide quite detailed information on their environmental performance. The environmentally aware potential employee can also be impressed by a publicly-available environmental policy statement which is backed up by certification.

As a stand-alone document without a system to back it up, the environmental policy statement will not offer the tenant a competitive advantage. However, where it is accompanied by the other requirements for certification, it can prove to be a useful marketing tool. This offers the prospect for an enhanced income security for property investors.

7:4.3 ORGANISATION AND PERSONNEL

This part of BS 7750 requires the nomination of a management representative who will have a defined authority and responsibility for ensuring that the requirements of the standard are implemented and maintained throughout the tenant's operations. This should provide the implementing tenant with a degree of discipline to ensure that objectives and targets are being met and that the written procedures are being followed.

A subsection of the Organisation and Personnel is the personnel, communication and training requirement. This demands that a tenant ensures its employees, at all levels, are aware of their responsibilities in achieving compliance with the environmental policy and objectives, and that they are made aware of the potential consequences of departure from specified operating procedures. Where members of staff are made aware of the potential consequences of damaging the environment, including that it could have a negative effect on the success of the company, it is less likely that employees will cause damage. This point was made clear by one of the auditors in section 6:6.4 in the previous chapter.

The tenant is required to determine the level of competence, experience, formal qualification and training, necessary to ensure that the personnel undertaking activities which have, or could have, a significant effect on the environment, are acting in accordance with the targets and objectives. New recruits and staff assigned to new tasks would also have to undergo the necessary training in order for them to avoid non-compliance with company policy.

The training programmes required to be introduced by those tenants who became certified to BS 7750 are very significant to the property investor. The auditors indicated that where employees do not receive the required training to enable them to carry out their functions properly, as requested by a management system, the prospect that environmental damage will occur will significantly increase.

Tenants, with an aware workforce which is appropriately trained, will be far less likely to transgress environmental legislation and cause environmental damage. This reduces the risk that their income flow will be interrupted by environmental liabilities, and subsequently offers an investor a more secure income stream, compared to tenants engaged in similar activities where no formal training exists.

7:4.4 ENVIRONMENTAL EFFECTS EVALUATION AND REGISTER

BS 7750 requires a certified tenant to assess its most significant environmental effects, and to compile a register of them accordingly. These effects should include the assessment of direct and indirect environmental risks of its activities, products and services. This process will be facilitated by the preparatory review stage, where an initial investigation would have been carried out. Where the company becomes aware of its most significant environmental effects, it can introduce policies to reduce them, for example, to reduce discharges, emissions or to dispose of waste properly. These initiatives will obviously help the tenant to comply with important pieces of environmental legislation, such as the EPA 1990, and the WRA 1991. Tenants will be supported in their compilation of such registers in the near future by the introduction of sector application guides by the BSI.

The assessment of company-wide environmental performance is allowed for by the Standard. Tenants wishing to gain certification will have to demonstrate that the significant environmental effects of activities being carried on at other sites have been taken into account. Property investors will be particularly interested in this requirement since poor environmental management practices at other sites which the tenant occupies could lead to substantial environmental liabilities. This could have a significant effect on the financial performance of the tenant as a whole, and lead to deterioration of covenant and, therefore, a reduction in value of a property investment. In extreme cases, it could lead to the financial failure of the tenant, thereby leaving the landlord with no income and a vacant property.

The tenant will be requested to compile a register of legislative, regulatory and other policy requirements, and to maintain records of such requirements. The Standard goes on to state that the minimum level of acceptable performance is compliance with current environmental legislation (BSI, 1994: 14). Once this has been established it is then necessary to maintain the system and keep it up-to-date, which ensures the tenant has procedures in place to monitor future regulatory developments.

7:4.5 ENVIRONMENTAL OBJECTIVES AND TARGETS

In the context of its environmental effects, the tenant will be required to produce quantifiable, publicly available environmental targets and objectives. Once again the standard stresses that compliance with all relevant legislative and regulatory requirements are the minimum standards permissible. There should be a commitment to continual, year-on-year improvement in overall environmental performance.

Tenants are required to target areas for improvement which are most likely to reduce the environmental risks and liabilities faced by the organisation. This is a particularly important feature for property investors since they can be assured that tenants complying with the standard have a management system in place capable of reducing the risk of environmental liabilities occurring.

Investors owning property occupied by such tenants will be assured that the risk of environmental liabilities resulting from the current land use activities are significantly reduced.

The publishing of objectives and targets also provides other stakeholders with the opportunity to measure the tenant's environmental performance. Satisfying these external parties that their environmental impacts are competently managed will be increasingly important to a tenant's future economic success.

7:4.6 OPERATIONAL CONTROL

Without Operational Control, it would be very difficult for the tenant to ensure that its environmental policy, objectives and targets and programme are put into practice on a day-to-day basis throughout the organisation. Thus, the tenant must plan any functions and activities which have a significant (direct or indirect) impact on the environment. Such control will include documented procedures and work instructions defining the manner in which activities should be undertaken; and procedures and work instructions relating to the tenant's procurement procedures, to ensure that suppliers are complying with that part of the environmental policy statement which relates to them. For example, if a tenant is committed to purchasing goods from companies whose environmental performance meets specific standards, procedures must be in place to obtain the relevant information. The standard indicates that any activities over which tenants can exert influence should be subject to control and verification procedures.

The verification, measurement and testing of the system requires a tenant to maintain procedures for verifying compliance with the programme, targets, manual and work instructions, and to maintain records of these results. Non-compliance and corrective action is also included in the standard. This should outline the procedures to be undertaken in the event of non-compliance with specified requirements relating to the EMS. These procedures are required to determine the cause of the non-compliance and to apply controls to ensure that preventative actions taken are successful.

7:4.7 ENVIRONMENTAL MANAGEMENT AUDITS

The standard recommends that all parts of any organisation should undergo an audit at least every three years, particularly if the company is considering registering under the EU's Eco-Management and Audit Scheme. The persons conducting the audit should be capable of carrying out the task objectively, impartially and effectively.

Where a tenant is considering registering under the European scheme, it is reminded that independent, externally verified audits will be required.

The primary function of the audit is to determine whether the environmental management activities conform to the manual, programme and procedures, and whether the effectiveness of the system is fulfilling the organisation's environmental policy.

These will allow any participating tenant to audit how well the procedures (which the tenant itself has set) within the EMS are allowing for all legislative and regulatory requirements to be met. It will allow the tenant to determine whether the objectives, for example, those relating to reducing energy requirements, raw materials used or waste generated are being met. The audit will help the tenant to introduce new measures to improve the performance in the areas which require it.

Where environmental audits within EMSs are carried out, tenants will be unlikely to cause environmental damage. This will allow them to avoid criminal fines or statutory or civil clean-up costs which are increasingly likely to result from such degradation of the environment. This will enhance the income security of the properties they occupy, and reduce the prospect of landlord liability for environmental damage.

The auditing of procedures to reduce resource consumption, minimise waste generation and improve energy efficiency, are also sources of potential savings for tenants. This could also have a positive effect on the investor's income security.

7:4.8 ENVIRONMENTAL MANAGEMENT REVIEWS

This requires that certified tenants review their entire EMS, including the environmental policy and environmental objectives and targets, to ensure its continuing suitability and effectiveness. Any recommendations made within the audit report will be considered. The standard makes clear that the audit should

concern itself with emerging environmental issues which the tenant should duly consider. Such developments could include potential regulatory developments and market pressures which demand that changes are made to policy, objectives and targets.

This part of the EMS should be of great interest to property investors. Firstly, it makes clear that the environmental performance of the tenant is company wide, and that it does not only relate to that part of the tenant occupying the property owned by the landlord. Since environmental liabilities incurred at another site could undermine the tenant's financial standing, it is important for investors to be assured that these sites are subject to environmental programmes. The standard also makes clear that any future regulatory developments are to be closely monitored and provided for within the EMS. This suggests that certified tenants will be in a strong position to ensure continued compliance with environmental legislation.

7.5 SUMMARY

The evidence presented in this Chapter, and those preceding it, confirms that the implementation of an EMS by an occupying tenant will present benefits to landlords. These are centred around the potential enhancement of income security of the investment, and the reduced prospect of environmental liabilities being passed on to the landlord. EMSs mitigate these specific risk factors of property investments. However, it is acknowledged that these reductions in risk will be more pronounced where certain investment conditions exist. Some of the more important conditions are the activities carried on within the property purchased; any off site operations in which the occupying tenant may be involved; the age and wording of the lease; and the size and structure of the property investor's portfolio.

However, even where investment conditions suggest that investors can reduce an element of investment risk by giving due consideration to the existence or otherwise of an EMS, it is recognised that such systems should not be regarded as a panacea.

The main area of concern expressed by the various interviewees involved with this research, centred around the auditing arrangements of the British Standard. The audits are to be carried out by appropriately-qualified personnel, who can come from within the tenant's organisation. This has led some to argue that the audits will be less rigorous affairs than the external publicly available audits required under EMAS. A comment from a Chartered Surveyor illustrates the concerns:

> "I think it will depend on how the standard is accepted throughout industry, what sort of press has it received. I am also interested in the certification process and the auditing of the tenant's system once it is up and running. If the tenant just gets certified and then for ever more audits its own environmental performance, then it will carry less weight. However, if the tenant has to have external independent assessors in on an annual basis, then it is far more likely to be taken into account in the investment decision-making process" (Anon Surveyor 6, 1994: 361).

Other investors took the view that they probably would not take the British Standard into account because they considered the closely related Quality Assurance standard to be " ... a waste of time" (Anon Fund 2, 1994: 170). Such views cannot be ignored and, where they prevail, it can be assumed that the EMS concept will not be taken into account.

Another auditor questioned whether BS 7750 would instil the discipline required of employees to reach their targets and objectives (Anon Auditor 3, 1994: 38). However, the opposing view was that the appointment of an appropriately-qualified person to oversee the work would bring about reductions in environmental risk (Anon Auditor 1, 1994: 8).

The property investment market's view and understanding of the certification arrangements under BS 7750 and EMAS, is also crucial to any potential relationship which exists between the development of an EMS by an occupying tenant and the attractiveness of that property to a prospective investor. Due to the excellent work of the IEA, the EARA has ensured that certifiers and verifiers involved in assessing the

environmental performance of tenants will be working to recognised professional standards. It remains to be seen whether this will be enough to reassure property investors that environmental risk has been reduced, or whether they will require their own independent audit of a tenant to be undertaken even where that tenant is certified to BS 7750. (See also Hunt and Johnson, 1993, who argue that experience from BS 5750 - the quality assurance standard - shows that in order for the credibility of the EMS approach to be maintained, the certification process for BS 7750 will need to be suitably rigorous, and subject to effective national control).

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CHAPTER EIGHT

8.0 SUMMARY, LIMITATIONS, RECOMMENDATIONS FOR FURTHER WORK AND CONCLUSIONS

8.1 SUMMARY

This work recognises a new aspect of property investment risk. It has investigated the potential for a tenant's environmental performance to impact upon property investment returns, the use of EMSs as a tool to reduce this risk, and the attitude of the property investment market towards these issues. In the light of the major environmental developments which have taken place in the last few years, this work has examined a new and increasingly important element of property investment risk. The following paragraphs summarise the major findings of the research.

It has been demonstrated that it is increasingly important for commercial organisations to respond to the significant environmental pressures which they now face. It was shown that tenants causing environmental damage, through poor environmental performance, will be required to pay for its clean-up. Without proactive environmental management techniques, tenants may also find that raw material, waste disposal and energy costs all rise significantly, whilst non-compliance with environmental legislation will cost both management time and money. These issues will inevitably have repercussions for the income security of property investments.

It was established that the EMS approach is becoming increasingly popular with companies wishing to demonstrate they have achieved a recognised standard of environmental performance. The significant interest in BS 7750 suggests that it could be a useful measure of tenant environmental performance for property investors.

The concept of the environmental performance of a tenant has been placed under well-defined and accepted definitions of property investment risk. It has been argued that poor environmental performance - displayed at individual properties - will impact upon the investment performance of property. Furthermore, due to property's inherent investment characteristics, it is difficult to diversify away specific risk factors such as tenant environmental performance.

It has been demonstrated that most institutional and property investment company portfolios are likely to include properties which are occupied by tenants with some potential to pollute the environment. Evidence was provided to demonstrate that where such pollution occurs, landlords could become criminally liable for fines and/or statutory clean up costs. The environmental lawyer interviews supported the interpretation of environmental legislation. It was also acknowledged that where tenants are involved in substantial industrial undertakings at other sites, property investment returns can still be affected. Due to the cost of environmental liabilities, off-site problems can cause income security issues for the tenant and consequently the landlord.

The methodological approach has been outlined and justified. The use of semi-structured interviews to obtain qualitative data was shown to have been used in previous studies with similar research aims. The consultation of environmental risk in relation to commercial property was very wide. It is the first in-depth study to incorporate the views of property investors, environmental auditors and environmental lawyers.

The results of the empirical work have been presented. Three of the nine tenants interviewed by the researcher were examined in detail in relation to environmental risks. Through the semi-structured interviews with environmental auditors, the correspondence with statutory regulators and an understanding of the relevant environmental legislation, it was shown that environmental risks existed and that they had the potential to impact upon property investment returns. The environmental risks associated with the tenants' wider commercial activities were also considered. High-grade empirical evidence was also provided, demonstrating

that the implementation of EMSs by tenants, would reduce the prospect of environmental damage and landlord liability.

The results of the semi-structured interviews with institutional investors, property investment companies, chartered surveyors and banks were also presented. They illustrate that investors perceive there to be environmental risks associated with tenant activities where certain investment conditions exist.

Where tenants were undertaking uses regarded as potentially polluting, most investors expressed concern about the tenant's environmental performance. There did not appear to be a consistent method in which environmentally risky uses were recognised. Some interviewees, particularly surveyors, used the use classes order as a guide to environmental risk and argued that environmentally risky uses were exclusive to owner-occupied special industrial type property.

Concerns over tenant environmental performance increased where the lease was not considered to offer complete protection to the landlord. Property, governed by leases which pre-dated environmental issues, would result in investors either considering in detail the tenant's potential to cause pollution incidents and their environmental performance, or they would walk away from the property investment. Similarly a weak covenant signalled a heightened interest in the tenant's environmental performance, although once again investors were equally likely to walk away from the property investment.

In an attempt to reduce their exposure to the risks associated with a tenant's environmental performance, most investors acknowledge that their leases had been updated. More restrictive user covenants and restrictions on assignment were not considered appropriate due to the inevitable impact on rent review. However, general provisions within leases had changed, for example, tenants were prohibited from pouring dangerous chemicals down drains, and from transgressing environmental legislation. Chapters Four and Six illustrated that such changes can result in landlords becoming criminally liable for environmental damage. It is important, therefore, that where such provisions have been updated, the landlord's

management surveyors regularly check tenant compliance, and that any action which is required is taken.

Chapter Seven provided a detailed examination of BS 7750 in relation to property investment risk. It confirms the arguments put forward in the thesis, that where occupying tenants have adopted such a system the potential for environmental risk to impact upon property investment returns is significantly reduced.

8.2 LIMITATIONS AND RECOMMENDATIONS FOR FURTHER WORK

8.2.1 LIMITATIONS

The data-collection carried out in relation to this thesis was very comprehensive, and the widest possible consultation was undertaken. The interviews with environmental auditors, environmental lawyers, institutional investors, property investment companies, firms of chartered surveyors and banks, has provided information from which significant and original conclusions have been made.

However, it is acknowledged that the sample interviewed represents a small fraction of practising professionals, and it would be erroneous to claim that a representative sample had been interviewed.

It could also be argued that the environmental auditors and lawyers had vested interests in commenting upon environmental risks. However, neither group would benefit from exagerating potential environmental risks in the context of a research interview. It is unlikely, therefore, that the interviewees provided anything other than their professional opinions.

That auditors had to work from material provided by the researcher was an obvious limitation on their ability to appraise the site. However, there was no option but to proceed in this manner.

Only nine properties were inspected by the researcher. Once again it is acknowledged that such a small sample is not representative of the wider industrial property market, although it is argued that this was not required by the methodological approach adopted.

The time and resource constraints, which are inherent in any doctorate research were also obvious limitations to the empirical data collection.

8.2.2 RECOMMENDATIONS FOR FURTHER WORK

Tenant environmental performance and property investment risk is a new area of research with much work still to do. Further research could be usefully undertaken in the following areas.

BS 7750

It is necessary that EMSs, such as BS 7750, are taken up as widely as possible by tenants occupying industrial property. Whilst evidence suggests that there will be widespread take-up, it would be useful to monitor the number and type of organisations that do so. This would allow property investors to become aware of the types of tenants that should be considering adopting such a standard. Where there is no evidence of such development, at the individual property level, the investor will be more aware of the potential environmental risks associated with that particular property investment.

BS 7750 and Future Prosecution

Whilst the empirical evidence in this thesis demonstrates that the development of EMSs will reduce the prospect of environmental liabilities - for both tenant and landlord, further research should be carried out in this area. It may be possible to

correlate future prosecutions by the Environmental Protection Agency against those companies certified, or otherwise, to BS 7750. This would provide further empirical evidence to support, or indeed, refute the arguments put forward in this thesis.

Towards a quantification of environmental risk

Although high-grade empirical research has been conducted, establishing that the environmental performance of tenants will impact upon investment returns, no attempt to quantify these risks was made. This task is made more difficult because of the individual nature of pollution incidents and the diverse level of fines and clean-up costs. However, as more data becomes available and, perhaps more importantly, an profession-wide approach to the valuation of contaminated land is accepted, this task will become more realistic. In the USA, it has been possible to move in this direction because of greater data availability on clean-ups costs (see Chalmers and Roehr, 1993). Research in this field is progressing in the UK, and an attempt to provide an acceptable approach to the valuation of contaminated land is currently being developed at the College of Estate Management (Dixon and Richards, 1995).

Environmental Issues and Property Investment

Further research, dissemination and discussion should take place within the property research community in relation to a broad range of environmental issues and their potential impact upon property investment returns. This work should not be confined to the topic of contaminated land, and would be required to consider such issues as road pricing, the greater use of public transport, 'greener' planning policies and green buildings.

8.3 CONCLUSIONS

Evidence has been presented throughout this thesis establishing the environmental performance of tenants as a source of property investment risk. The level of environmental awareness, policies and management practices displayed by an occupying tenant can influence the level and variability of return offered by a

property investment. Understandably, certain investment opportunities will be subject to this risk to a greater extent than others.

It has been empirically established that one of the most important factors determining this level of risk is the existence or otherwise of an environmental management system. Where tenants develop such systems two main benefits are bestowed on property investors. Firstly, the prospect that income security will be interrupted by environmental problems associated with a tenant's activities will be significantly reduced. Secondly, the chance that landlords will face statutory fines and clean-up costs related to environmental damage will also decrease.

The empirical evidence shows that the property investment market has become aware of the environmental risks associated with tenant activities. This is evidenced by property investors considering the issue at the stock selection level (both on acquisition and, to a lessor extent, on their existing portfolio). The updating of lease provisions, where tenants are specifically required to comply with the Environmental Protection Act and the Water Resources Act, is also evidence. It is difficult to understand why tenants are required to comply with environmental legislation unless investors are concerned that poor environmental performance on the tenant's part will impact upon investment returns.

The empirical work also established that the property investment market recognises the concept of environmental management, and accepts that it has a role to play in reducing potential exposure to environmental risk. Once again the environmental management system concept was considered more important under certain investment conditions.

This research, therefore, represents a new domain of enquiry being the first study specifically to examine property investors' perceptions towards the environmental risk which is associated with an occupying tenant's environmental performance. The use of an "ethnograph" for the analysis of qualitative data is also a novel approach to property investment research.

Those investors relying on bank finance may find that they have no alternative but to take account of the environmental performance of tenants in their investment decisions. The empirical work in Chapter Six provided strong evidence that banks are increasingly concerned with tenant environmental risk. Many banks have begun applying pressure to their property investment company customers requiring them to become aware of the environmental risks associated with current uses of property. The banks considered that environmental management systems should be part of a strategy to reduce environmental risk.

It should be acknowledged however, that the environmental management system concept cannot (and was not) regarded as a panacea. For example, concern was expressed by environmental auditors and investors relating to the internal auditing arrangements of BS 7750 for environmental management systems. (Although the overwhelming view from environmental auditors was that the implementation of BS 7750 would reduce the risk of environmental damage occurring). It is too early to determine whether the property investment market will rely on the existence of an environmental management system to help gauge tenant environmental risk, or whether they will insist on their own environmental audit being undertaken.

This research is original because it is the first attempt to consider the concept of tenant environmental performance in the context of property investment risk. The relationship between the two has been established by considering relevant literature and by the empirical work undertaken during the course of this research. The potential impact of environmental management systems upon the relationship between tenant environmental performance and property investment risk, has also been thoroughly investigated. This thesis has considered this new element of risk under the source of property investment risk referred to as 'tenant risk'.

LIST OF REFERENCES

Chalmers, J. A. and Roehr, S. A. (1993). Issues in the Valuation of Contaminated Property. Appraisal Journal, January, 28-41.

Dixon, T. and Richards, T. (1995). Valuation Lessons from America. Estates Gazette, [1995] 29EG110 - 112.

APPENDIX ONE

PLEASE NOTE: YOUR RESPONSE WILL BE TREATED IN STRICT CONFIDENCE

Company Name:

Job Description of Respondent:

Description of Business:

Date:

Section 1. Management Questions

1a) Does your company have a specific environmental policy?

Yes

If yes, is it possible to supply a printed copy of it?.

How long has this policy been operating?

No

1b) Has your company carried out an environmental audit of this site?

Yes

No

Has an environmental audit been carried out of any other site the company owns?

Yes

No

1c) Has your company undertaken **any** investigation into its environmental impacts upon the site or the wider environment?

Yes If yes, please outline which impacts, and/or supply the appropriate information.

No

1d) Does one individual have overall responsibility for environmental matters within your company?

Yes If yes, please give his/her position within the company, and the length of time they have had this responsibility.

No

1e) What steps are taken to ensure the company is complying with all the relevant environmental legislation, both at the present time and in the future?

1f) Do members of staff receive any training which will help the company to comply with relevant environmental legislation?

Yes If yes, how long has this training programme been in operation?

No

1g) Has your company developed written procedures (for staff) to manage activities which could impact on the environment?

Yes If yes, outline those environmental issues which are now subject to written procedures. *For example; planning waste disposal, air emissions or water discharges.* Please indicate how long these written procedures have been in place.

No

1h) Does your company report on its environmental performance to interested stakeholders, for example, the public, investors or shareholders?

Yes

No

1j) Is there a commitment within your company to become certified to BS 7750 (Specification for an Environmental Management System) or the European Community Eco - Management and Audit Scheme?

Yes If yes, please indicate which one.

No If no, are you aware of these schemes?

Section 2. Products, Processes, Waste and Storage.

2a) Please outline the current activities/processes which are carried out on the site. This should include:

- The nature of the materials stored/used on site. *For example; Acids and Alkalis, Heavy Metals and metal compounds (including: Hg, Cd, Pb, As, Cr, Se), Organic solvents, Chlorinated organic compounds, Phenols, Cyanide and its compounds, Vinyl chloride, Pesticides, Asbestos,* ***Any Others (please specify).***

- The main processes involved in the manufacture of your products. *For example; Degreasing, Galvanising, Plating, Smelting, Formulating chemical products, Solvent recovery, Foundry, Tar acid distillation,* ***Any Others (please specify).***

2b) Does the site require authorisation under Part I of the Environmental Protection Act 1990?

2c) For any processes which are carried out on site, that release materials into the air, discharge wastewaters or produce solid waste, please describe the materials that are released, and whether any consents from statutory authorities are legally required.

Description of discharge or emission

From what process

Consents required

2d) Please indicate through which of the following means your wastewater is released:

Sewer
River
Lake
Canal
Estuary
Sea
Ground
Groundwater
Other (Please Specify).

2e) What are the main types of solid waste (including sludges) which are produced at your site?

2f) Are the types and quantities of waste monitored?

Yes If yes, does this include a waste inventory?

No

- What procedures have been adopted to ensure compliance with the Environmental Protection Act's Duty of Care Regulations for storage, treatment and disposal of waste?

- How were those parties which are responsible for collecting and disposing of waste from the site chosen? Do you audit them?

- In relation to waste, outline the duties which staff have been allocated, and any training which they have received?

- Does the company have procedures to deal with accidental spillages of waste? If so, please outline them.

- Has your company ever deposited any waste on the site? Are you aware of any waste ever having been deposited on the site?

2g) What liquids or gases are stored on your premises? For example, is fuel or oil stored on site? In what quantities (approximately) are these substances stored? What procedures are in place to deal with any leaks or spillages of substances on site?

Section 3. Legal Issues.

3a) Please provide a list of any consents or authorisations which have been obtained for processes carried out which involve emissions to air.

- Please provide information on any conditions attached to such authorisations.

3b) Please provide a list of any consents or authorisations which have been obtained for trade effluent discharges.

- Please provide information on any conditions attached to such authorisations.

3c) Please provide information on any authorisation which has been obtained under Part I of the Environmental Protection Act 1990.

3d) Has your company ever received warnings or been prosecuted for breaches of environmental legislation?

If yes, please give details. For example, the date and nature of any enforcement action taken by the authority.

How would you describe your relationship with the Regulators?

3e) Please provide details of any correspondence received from third parties outlining potential liabilities, for example, from regulators or neighbours.

Have there been any recent spillages/accidents which may give rise to such correspondence in the future?

Section 4. Finance

4a) Has the company made any provision against possible future environmental liabilities? For example, insurance, sinking fund or bonds.

4b) Does the company benefit from environmental liability insurance? Does this policy provide cover against third party/or public liability risks arising on the property?

4c) Please indicate which of the following best describe the company: **(Therefore, it is only necessary to fill in only one part of this section).**

- A small private company with under 20 employees, which operates only from the above mentioned site.
    - If it is known, state the number of employees.

- A small private company with under 20 employees, which operates from more than one site.

  - If it is known, state the number of employees.
  - If the company operates from other sites also, are substantial industrial undertakings carried out from these other sites? (This should be considered with specific reference to Section 2 which was concerned with Products, Processes, Wastes and Storage).
  - Are similar activities to those being carried out on this site carried out at other sites?
  - Do similar environmental procedures, to those which exist on this site, also exist on other sites used by the company?
  - Has the company adopted a company wide environmental policy?

- An SME (small to medium enterprise) which operates from more than one site and is in private ownership.

  - If it is known, state the number of employees.
  - If the company operates from other sites also, are substantial industrial undertakings carried out from these other sites? (This should be considered with specific reference to Section 2 which was concerned with Products, Processes, Wastes and Storage).
  - Are similar activities to those being carried out on this site carried out at other sites?
  - Do similar environmental procedures, to those which exist on this site, also exist on the other sites of the company?
  - Has the company adopted a company wide environmental policy?

- A Public Limited Company.

  - If it is known, state the number of employees.
  - If the company operates from other sites also, are substantial industrial undertakings carried out from these other sites? (This should be considered with specific reference to Section 2 which was concerned with Products, Processes, Wastes and Storage).
  - Are similar activities to those being carried out on this site carried out at other sites?
  - Do similar environmental procedures, to those which exist on this site, also exist on the other sites of the company?
  - Has the company adopted a company wide environmental policy?

- A Multi-National Company operating from different countries.

  - If it is known state the number of employees.
  - If the company operates from other sites also, are substantial industrial undertakings carried out from these other sites? (This should be considered with specific reference to Section 2 which was concerned with Products, Processes, Wastes and Storage).
  - Are similar activities to those being carried out on this site carried out at other sites?
  - Do similar environmental procedures, to those which exist on this site, also exist on the other sites of the company?
  - Has the company adopted a company wide environmental policy?

APPENDIX TWO

Unit A Industrial Estate One
Gwent

Interview Date 30/09/94

The following was elicited from a one hour interview with the General Manager of the organisation.

Processes and Legal Issues

The main activity carried out at Unit A industrial estate is the Gravur Printing Process. This involves rolling paper through several different machines and applying inks and dyes to it in order to create a pattern. This paper is then used as gift wrapping paper. The process obviously uses quite a number of different substances, including: various solvents and inks, ethol acetate, industrial metholated spirits, methoxy-proponol, dye-octane phalad, industrial nitro-cellulose and plasticised ink chips. There are also four drums of heat transfer oil kept on site for the gas fired boiler.

The main printing process is regulated by Part B of Part 1 of the Environmental Protection Act 1990. However, the works manager mentioned that it was not necessary for the plant to obtain an authorisation from the Local Authority until 1997. Up to this date they will renew their current licence on the annual basis for emissions to air from the printing process. The condition applied to this authorisation is that there must be no more that $50mg/m^3$ of solid vapour.

The printing process also produces a certain amount of special waste, which is basically ink which has been used so many times it simply cannot be used again. This is taken away by a reputable special waste carrier. The other wastes produced on the site are paper waste, old wooden pallets and steel drums (which are treated as

controlled waste by the company). This controlled waste was stored in outside skips and then collected by a registered waste carrier (Biffa).

The company has not applied for a trade effluent discharge, consent from Welsh Water. The general manager stated that the processes involved did not produce waste water and therefore, no trade effluent discharge consent was necessary. The water from the premises is released into the public sewer.

Environmental Management

The tenant does not have a company environmental policy statement, nor has it carried out any kind of environmental audit of this site or any other that it owns or occupies. The general manager has responsibility for environmental issues, although he seemed to be uninterested in the issues and more concerned with the host of other responsibilities he has. The manager does not subscribe to any environmental documentation such as ENDS or Croner's and has never been on any course on environmental legislation. He claimed to keep pace with the relevant legislation by receiving Government guidance.

There has been no official training programme on environmental compliance for employees, and there are no written procedures to outline how waste should be dealt with. The company did have a vague commitment to BS 7750; they mentioned that early next year they would be sending an appropriate member of staff on a training course.

Finance

The tenant is a subsidiary of an American company, similar printing processes are operated in Sweden and the USA.

The interviewee was unaware that the company had any insurance cover for losses arising out of environmental damage.

Outside Inspection

The photographs taken highlight some potential problems which could occur on the site. There were large numbers of drums stacked up outside the premises which contained the substances and chemicals mentioned above. These seemed to be stacked rather high, and there was no bunding available in the case of accidental spillage.

There was evidence that at lease some of these drums were being disposed of by putting them in with controlled waste. It seems unlikely however, that if these drums were special waste then the registered waste carrier would agree to take them away.

There was evidence at the rear of the premises that some spillage of chemicals had occurred, since the tarmac was badly marked.

Bottles of gas, which were used to power the fork lift truck, were stored at the rear of the premises in a wire cage. This cage was approximately 30 metres from the rear of the building.

The **may** have been some soil contamination on the site. An area of vegetation at the rear of the building seemed to be waterlogged and discoloured. The grass was covered by water, and there seemed to be an oily sheen to the surface of the water. The perimeter of the water also seemed to be blackened, although it should be mentioned that no source of oil was immediately apparent.

Unit B Industrial Estate Two

West Glamorgan

Interview Date 19/10/94

The following was elicited from a 45 minute interview with the Managing Director.

Processes and Legal Issues

The company is a Biological Products Manufacturer, manufacturing human and animal health products. The only chemicals used in large quantities on site are alkalis. These are used as a pH controlling factor in the fermentation process - about 20,000 litres are used per year. This fermentation process obviously produces trade effluent - sodium lactate - but the researcher was told by the company that Welsh Water had informed them that the effluent levels do not require a discharge consent. However, when Welsh Water were contacted it was revealed that the company does actually have a trade effluent consent (see end of this interview). The discharge has a high Biological Oxygen Demand. The other major process carried out on site is the freeze drying process, this also produces an effluent which is "slightly contaminated". These discharges are direct to sewer.

The main types of waste generated on the site are associated with the office and canteen, such as cardboard etc. A waste inventory is not kept, and "Biffa" are the waste carrier.

The researcher was informed that the company does not require a permit, authorisation or licence from any of the statutory regulators. (Again, this was later shown to be inaccurate).

The company has been questioned quite closely about its trade effluent. Welsh Water are apparently aware that a trade effluent in the area is causing corrosion of a ladder (which is used to gain access to the sewer from the manhole). This problem,

to the interviewee's knowledge, has not been resolved, and questions must, therefore, remain about the safety of this tenant's effluent or another tenant's very close by.

Environmental Management

The company does not have a specific environmental policy. Although the company has not carried out an environmental audit of the site, the interviewee said that they were very conscious of their trade effluent, and some work has been carried out to ensure that it is safe.

The interviewee (Managing Director) has overall responsibility for environmental matters within the company, he has had this responsibility for four years. The company do not subscribe to any environmental newsletters or periodicals to keep up to date with relevant legislation. Instead they rely on visits from the regulators themselves to keep them informed of what they should be doing. The statutory water company (Welsh Water) has visited the site as have the environmental health department of the local authority.

Members of staff, in general, do not receive any training to ensure legal compliance. However, the staff working in the laboratory, which is on site, do receive training and guidance.

The managing director was unaware of BS 7750, and there was no commitment to gain certification.

Finance

The company is a small private company with approximately 25 employees operating from this site only. The company has not made any provision against environment related losses, nor does it benefit from environmental liability insurance.

Outside Inspection

There were no signs of visible contamination at the site.

Latest Conditions

04-Aug-94

File Ref	Occupier		Address			
	Discharge Type			Discharged to		SPT Ref
	Notice Date	Division	Local Office	Status	SIC	Validation
762	[redacted]	[redacted]		[redacted] Industrial Park, [redacted] Glamorgan		West
	Freeze Drying And Fermentation Products For Agricu					74751
	15/07/92	SW	Swansea	Current	2567	x x - -

Latest Conditions:	61 ph	LT	10	
	61 ph	GT	6	
	183 sulphate	LT	1000	mg/l
	666 oil and grease	LT	50	mg/l
	9307 discharge hourly rate	LT	0.6	m3/hr
	9308 discharge daily volume maximum	LT	2.5	m3

Unit C Industrial Estate Two

West Glamorgan

Interview Date; 26/10/94

The following was elicited from a one hour interview with the Company Director.

Processes and Legal Issues

The company manufacture oil field equipment. The main manufacturing/engineering process which is carried out, therefore, is the cutting of metal to certain sizes. This involves turning large sections of metal and to shape them. The larger pieces of metal are turned in special machinery, and a coolant, made up of oil and water, is used to prevent the metal from overheating. This coolant is collected in a sump in the bottom of the machine. However, some of the coolant does evaporate and is routinely topped up with more oil and water. The atmosphere in the factory tended to be slightly hazy, and smoky from the evaporation of this coolant.

Smaller pieces of metal were also drilled and turned in the factory. However, this was carried out in the open, and during the process the oil-based coolant is sprayed over the floor. This is in very small quantities, but the cumulative effect may be to cause the concrete flooring to be contaminated with the oil.

Some paint spraying was also carried out within the factory. This was not closed off from the main part of the factory, although some kind of extraction unit was fitted over the spraying area.

An area of the factory was also set aside for detecting cracks, which sometimes occur in the flanges which are manufactured on the premises. These flanges have to be cleaned during the inspection process, which involves the use of solvents.

The liquids and gasses which are stored on site include; solvents, paints, machine oil and propane to power the forklift truck.

The interviewee told the researcher that no authorisation, permit or consent was needed by the company. However, there may be some doubt as to whether the paint spraying activities would require an authorisation under Part I of the EPA, falling under Local Authority Air Pollution Control. The use of solvents in the cleaning process may also suggest that a trade effluent discharge consent would be required from Welsh Water. Although a relatively small amount of solvent was used, it was doubtful as to whether it was treated before being discharged to sewer. (All water is discharged into the sewer).

The main type of waste from the manufacturing activity was metal swarf, and timber packing cases. The external inspection highlighted a potential problem with the storage of the swarf as indicated by the photographs (see plates 6.6 and 6.7). The swarf is stored in a skip, however, whilst it is stored the oil and water coolant drain away from the metal, to the base of the skip. This liquid was then running away from the skip into the gutter which leads to the public sewer.

Environmental Management

The tenant does not have a company environmental policy statement, and an environmental audit has not been undertaken of this site. No individual person has responsibility for environmental matters within the company. Members of staff do not receive any formal training to ensure that they comply with environmental legislation. The Director was unaware, and it was not apparent, that any steps are taken to ensure that the company do actually comply with the relevant environmental legislation, both at present and in the future.

The company does not report its environmental performance to stakeholders. However, the director was aware of BS 7750 and although there was no formal commitment to it at the moment, he mentioned that in the future they may need it to survive. They deal with the large oil companies, such as BP, Shell etc. and these are companies that are under the largest amount of pressure to improve their environmental performance. Improving their environmental performance obviously

requires vetting their suppliers too. Therefore, the Director was quite concerned that they may have to go down this route to satisfy their customers.

Finance

The tenant is a privately owned company, employing 46 people. They operate from two sites (there is a small office and warehouse premises in Aberdeen). The company has normal third party insurance cover.

Outside Inspection

The outside of the premises were relatively clean, with no visible sign of contamination. However, there must be some concern about the storage of the oil at the rear of the premises without bunding, and the leaky skip which allows liquid, containing oil, to pass directly into a public sewer.

Unit D Industrial Estate Two
West Glamorgan

Interview Date 19/10/94

The following was elicited from a 45 minute interview with the Managing Director.

Processes and Legal Issues

The company is an Electrical Cable Harness Manufacturer. This is a dry manufacturing process, involving pieces of cable being cut to length and adding electrical terminals. There are no materials or substances on site such as solvents, acids or alkalis.

The types of waste which are generated by the manufacturing activity, are odd lengths of cable, brass and copper. The general waste consists of cardboard and packaging. This waste flow is not monitored and there is no waste inventory. The waste disposal company was selected on the basis of cost and the recommendation of an employee who worked for a previous company who used the same firm.

The company does not require any authorisation, or permit under the Environmental Protection Act, the Water Resources Act or the Water Industry Act. No action has ever been taken by a statutory regulator against the company.

Environmental Management

The company does not have an environmental policy, nor has any environmental audit, of any description, been carried out on the site. The interviewee was responsible for environmental issues within the company.

The company depend on COSHH updates and bulletins sent around by the Health and Safety Executive to keep up-to-date with environmental legislation. There are no formal policies to ensure the company does not transgress environmental legislation.

Members of staff have not received any formal training to ensure that they are complying with environmental best practice, nor are there any written procedures for members of staff to follow.

The company does have a vague commitment to BS 7750. The reason for this is entirely due to market pressure. The company carries out a large amount of business with "blue chip" organisations, "many" of which are beginning to ask for environmental information when putting contracts out to tender. The interviewee accepted that they would have to do a lot of work to get up to the BS 7750 standard, but stressed that they may have to in order to survive.

Finance

The company has not made any provision against environment related losses, nor does it benefit from environmental liability insurance.

The company is an SME which operates from the above mentioned site only. It has around 50 employees.

Outside Inspection

There were no visible signs of contamination or potential pollution problems. The only source of possible pollution was from the skip, which upon inspection, seemed to have accommodated a fire recently.

Unit E Industrial Estate One

Gwent

Interview Date 20/09/94

The following was elicited from a one hour interview with the Environment Manager.

Processes and Legal Issues

The tenant manufactures lead acid batteries. They are regulated under IPC by HMIP with a Part A process under Part 1 of the EPA 1990. The company also have a trade effluent discharge consent from Welsh Water (see end of this interview).

Sulphuric Acid, Sodium Hydroxide (Caustic Soda), Hydrochloric Acid (used for water softening), and lead and its compounds are used by the tenant at this site. The sulphuric acid is kept in 4 bunded tanks which together hold a total of 15000 litres. The sodium hydroxide is stored in 3 bunded tanks which together hold a total of 10000 litres.

Although the stores were not examined, the interviewee explained that the substances are stored in bulk on site, in external stores, which are secured and bunded.

The company also keep solvents and resins on site which are stored in 45 gallon drums, as are oil-based products used by the company. Again the drums are kept in a secure storage area with bunding.

The main process carried out on site is the manufacture of lead oxide, which is the prescribed process under IPC for emissions to air. There is a total mass limit on the existing authorisation of 5.5 kg/year, and 2.0 mg/m^3 for any one discharge. This authorisation is currently being reviewed by HMIP since the company wish to produce more batteries, which would involve more emissions. Gravity pasting of lead is also undertaken, as is "paste mixing".

The trade effluent discharge consent into the public foul sewer is for the release of lead and acid into trade effluent.

Although the environment manager mentioned that the company had three consents, only one seems to have been passed on to the researcher.

The company have already been advised by Welsh Water that the discharge levels will all be significantly reduced over the next year. The interviewee mentioned that he had been told by Welsh Water that the discharge of lead in the trade effluent must be down to 2 ppm by the end of 1995, and down to 1 ppm by the end of 1997. The existing conditions imposed upon the authorisation relate to levels of pH, sulphate and lead.

There have been no prosecutions by any statutory regulator. However, the trade effluent discharge consent has occasionally been exceeded, although it has always passed the official testing by Welsh Water.

The waste generated by the company is composed of scrap batteries, components and lead material. These materials are collected by a smelting company, based in Derbyshire, who then use the lead as a raw material. The Waste Regulatory Authority are aware of this arrangement and seem satisfied with it. However, the interviewee mentioned that he was unsure how long this would continue, or whether, strictly speaking, the waste should be considered special waste and disposed of properly by a registered special waste carrier.

The controlled waste on site is placed in a compactor and then collected and disposed of by "Biffa" the waste disposal company. A local company collect the cardboard from the site which is stored in a separate skip.

The waste disposal company have not been audited. However, a truck from the site had been followed by the company to ensure that the waste was being disposed of in the proper manner by disposing of it in the correct location.

Liquid Oxygen is stored on site in quantities of up to 2500 m^3.

Environmental Management

An environmental policy statement has been adopted by the company since March 1993. (This applies to the site in Gwent only). The interviewee had overall responsibility for environmental matters at the plant, but he was unaware of anyone with overall responsibility for environmental matters in the company at large. No official environmental audit has been carried out to cover all the activities on the site, however, the interviewee seems to be managing the main processes.

The staff have certain procedures to follow when carrying out activities which could impact upon the environment.

Although there is no formal commitment to gain certification to BS 7750, the interviewee mentioned that they would be making proposals to the Board to this effect very soon.

Finance

The tenant is a wholly owned subsidiary of a Japanese Corporation. There are various sites around the world, including 4 - 5 in Japan, 5 - 6 in the United States and a number in the Far East. The manufacture of lead acid batteries is carried out in all these countries.

To the best of the interviewee's knowledge the company does not have specific insurance cover for losses incurred due to environmental damage.

Outside Inspection

The premises were kept very clean and tidy, both inside and outside; housekeeping is obviously an important part of the management guidelines.

Unfortunately it was not possible to take photographs of the outside of the building.

The property is a large industrial unit, typical of those found in the B2 Class of the Use Classes Order 1987. The grounds to the outside were very clean and no visible signs of contamination or pollution were recorded.

File Ref	Occupier	Address	SPT Ref
	Discharge Type	Discharged to	
	Notice Date / Division / Local Office	Status / SIC	Validation
971	[redacted]	[redacted] Industrial Estate, [redacted] Gwent	
	Waste Water Derived From Manufacture Of Lead - Aci		
	15/09/93 SE Ponthir	Current	x - - -
	Previous consents see File TE 63		

Latest Conditions:	61 ph	LT	11
	61 ph	GT	6
	91 cod - settled	LT	1000 mg/l O
	135 suspended solids 105 c	LT	750 mg/l
	183 sulphate	LT	1500 mg/l
	215 copper	LT	1 mg/l
	245 zinc	LT	1 mg/l
	328 lead	LT	5 mg/l
	375 chromium	LT	1 mg/l
	429 nickel	LT	1 mg/l
	666 oil and grease	LT	250 mg/l
	9307 discharge hourly rate	LT	15 m3/hr
	9308 discharge daily volume maximum	LT	350 m3

Unit F Industrial Estate Two
West Glamorgan

Interview Date 23/09/94

The following was elicited from a 45 minute interview with the Personnel Manager.

Processes and Legal Issues

The company are involved in the manufacture of electronic equipment. The processes involved are mainly mechanical processes, with very few chemicals and other substances being used. The varnishing of the electrical components involves the use of styrene, which is used to aid the hardening process of the product. The styrene is kept in 200 litre drums in the fire store. Because the styrene is reactive in the process, as opposed to "carrying", very low quantities of its gas are emitted into the atmosphere. The company applied for a Part B authorisation under Part I of the Environmental Protection Act 1990, however, the Local Council informed the company that an authorisation was not necessary because the quantities involved were so small.

The company does not have a trade effluent discharge consent, the interviewee mentioning that there is no liquid waste. The solid waste the company produces is outlined at the end of this interview, which highlights the company's procedure for dealing with waste. Whilst the waste procedures seem to be written very clearly, with waste being segregated and stored appropriately, the interview with the interviewee illustrates that the staff, some of which are involved in the handling of waste, have not received any training to ensure that the company procedures are in fact followed.

Environmental Management

The personnel manager has responsibility for the company's environmental performance, and the company environmental policy statement has been in operation

since 1992 (see at the end of this interview). An environmental audit has been carried out of the site by the "Environmental Protection Office" who are part of the holding group based in Japan. The company attempt to comply with all current and future environmental legislation by subscribing to Croner's Environmental Management, and other relevant publications. The company are considering BS 7750, and EMAS for the future, although there are no immediate plans to gain certification.

Finance

The tenant is a privately owned company, employing 250 people on the one site. However, they are a wholly owned subsidiary of the Japanese Corporation which has many different sites throughout the world.

The tenant does not have an insurance policy which would cover them against environment related loss.

Outside Inspection

There were no visible signs of pollution/contamination at the site. However, the only reservation would be the storage of drums outside the premises. This appeared to be very unsafe, and the interviewee had omitted to inform the interviewer that any chemicals/substances were kept on site. It is, therefore, unclear as to what is actually stored in the drums.

[redacted] ELECTRONIC COMPONENTS (U.K.) LTD

ENVIRONMENTAL POLICY

1) STATEMENT OF POLICY

It is the policy of this Company as part of the [redacted] Group to recognise the importance of environmental resources and by such a recognition save resources, protect the well-being of our employees, our customers and communities. This represents sound business practice.

In particular this Company will :

a) minimise any disturbance to the local and global environment and to the quality of life of the local community in which the Company operates : generally, for the Company to be a good neighbour and responsible member of society.

b) comply fully with all statutory regulations controlling the Company.

c) maintain the appearance of the Company premises to the highest practical standards.

d) take positive steps to conserve resources, particularly those which are scarce or non-renewable.

e) assess the environmental effects of any significant new development and adjust the Company's plans accordingly.

f) provide the necessary information to enable employees to operate the processes properly and with minimal effects on man or the environment.

g) cooperate with any local or statutory authority in the provision of information on any major new projects under consideration and obtain any approval necessary.

2) ORGANISATION AND RESPONSIBILITY

a) The responsibility to ensure that the Company follows good environmental practice in both current activities and future developments rests with board of directors, with the managing director ultimately responsible.

b) To facilitate and coordinate the environmental control activities of the Company the Personnel Manager shall perform the role of Environmental Manager.

c) [redacted] Environmental Protection Promotion Office will assist by providing support in education (including the establishment of the appropriate environmental manual) overview, consultations and audit activities.

(cont.)

d) Departmental Managers will be responsible for ensuring standard working practices which use a minimum of energy, produce a minimum of waste and that any waste which is produced is either re-cycled or disposed of in the correct way.

e) Section Supervisors will be responsible for carrying out the above responsibilities.

f) Maintenance department will be responsible for ensuring the correct performance of all plant designed to control pollution and to constantly improve and design out faults.

g) All employees have a responsibility for maintaining and improving the immediate environment, reducing wastage and complying with standard working practices which are designed to achieve maximum efficiency for protection of the environment.

3) STRATEGY

a) The Company will undertake a review of all its activities and assess the environmental impact of all aspects including :
   i) materials used
   ii) manufacturing process
   iii) waste and disposal thereof
   iv) packaging
   v) building and energy use

b) Determine what regulations and standards are relevant

c) Fix baselines to enable improvements to be evaluated.

d) Explore re-cycling opportunities or more effective and economic methods for waste disposal.

e) Explore possibilities for reductions in raw material usage and energy usage.

f) Evaluate the training needs required for each level in the organisation to be able to perform their responsibilities.

g) Monitor performance and initiate annual reviews.

h) Implement a procedure for dealing with any environmental claims from inside or outside the Company.

Signed :.....

19.7.94

PROCEDURES FOR HANDLING WASTE

1. Scrap metal
2. Packaging and general waste
3. Empty styrene and isolite drums
4. Waste styrene and isolite
5. Hazardous waste
6. Sanitary waste

1. SCRAP METAL

Scrap metal as a result of the process must be divided as follows:

a.) Copper Wire
b.) Iron
c.) Mixed
d.) Solder dross

Copper wire and mixed must be placed in separate wooden crates which originally contained SESS iron core.

When full these are transferred for storage to the warehouse.

Material control department is responsible for negotiating prices for the scrap metal with the appropriate dealer (currently MRJ Phillips).

Material control department is responsible for weighing the scrap metal and arranging for collection by the appropriate dealer.

Solder dross is collected in the appropriate metal container stored in Unit 2 warehouse area. When full, material control department is responsible for arranging collection and sale at the negotiated price by the appropriate dealer (currently MRJ Phillips).

2. PACKAGING AND GENERAL WASTE

Scrap wood, cardboard, plastic, polystyrene, canteen, office and other non-hazardous waste is disposed of into the compactor.

Stores department is responsible for unlocking the controls to the compactor in the morning and locking it up at the end of the day.

Stores department is responsible for calling the contractor (MRJ Phillips) to empty the container when it is full.

A further open top skip is provided as an overflow to cope with the waste demand from the time the compactor skip becomes full to the time it is returned after emptying.

A general controlled waste transfer note is provided by the collector for disposal at the Giants Grave Landfill site in Briton Ferry.

3. EMPTY STYRENE AND ISOLITE DRUMS

The producers of the above chemicals Schenectady have agreed to receive back the empty containers.

Material control department is responsible for ensuring the collection and return of the empty drums by the transporters used by Schenectady when they deliver to the company.

Empty drums are stored in the flamestores ready for return.

4. WASTE STYRENE AND ISOLITE

All liquid waste isolite and styrene is placed in an empty drum clearly marked and stored in the flame stores.

When several drums have been filled the Personnel department is responsible for contacting a specialist waste disposal company (currently Biffa) and arranging for the collection and disposal of the waste following the approved documented procedures.

5. HAZARDOUS WASTE

All other hazardous waste e.g adhesives, including empty containers must be placed in the appropriately marked green top container.

When several drums have been filled the Personnel department is responsible for contacting a specialist waste disposal company as (4.) above.

6. SANITARY WASTE

Personnel department is responsible for maintaining a contract with specialist waste disposal company (currently PHS) for the collection and disposal of the sanitary waste from the ladies toilets.

Unit G Industrial Estate One

Gwent

Interview Date 13/09/94

The following was elicited from a 35 minute interview with the Production Manager.

Processes and Legal Issues

The manufacturing process which is carried out in the unit is the manufacturing of electrical connectors. This process involves using small amounts of solvents and chemicals which are kept in steel cabinets. The tenant also keeps one 40 gallon drum of hydraulic oil (used to lubricate the machinery) within the factory.

Along with the injection moulding process, a small amount of labelling of plastics is undertaken. This obviously requires inks, hardeners, thinners and solvents. The production manager mentioned that very small amounts of these products are kept on site, and that the labelling of plastics was not a common occurrence - the process perhaps only being undertaken once or twice a year.

The respondent pointed out that the manufacturing process was essentially a dry process with no waste water being generated. A trade effluent discharge consent had, therefore, not been obtained from Welsh Water. The production manager recalled Welsh Water inspecting the process and being satisfied that no such consent was necessary.

The production manager seemed to be unaware of the duty of care for waste. The interviewee mentioned that there was no environmental legislation, except for the COSHH, which they needed to be aware of. The manager did, however, mention that the company followed all the manufacturer's recommended procedures for disposing of their products.

The main waste generated by the company is cardboard. This was, until recently, stored outside in open skips for a company to collect for recycling. However, the

company found that children from a nearby housing estate were setting fire to the cardboard. The storage of the waste is now in secured bins and collected by Biffa (Waste Disposal Company).

The manager also had an inventory of products, chemicals and substances which are used on the site.

Environmental Management

The tenant has no specific environmental policy statement, and no audits have been undertaken of this site or any other the company owns. The production manager has overall responsibility for environmental issues on the site. The tenant keeps an inventory of all chemicals and substances used on site and the interviewee mentioned that this helped them to comply with the necessary environmental legislation.

No training has been given, or written procedures exist, in order to ensure that members of staff carry out their functions in accordance with the relevant environmental legislation.

The respondent had not heard of BS 7750 or the Eco - Management and Audit Scheme.

Finance

The company has its headquarters in Switzerland, where another factory, similar to the one in Gwent - although on a smaller scale - operates from. There is also a factory in Sri Lanka which is about the same size as the factory in Gwent (40 employees). It is a private company.

The company does not have any insurance cover for losses arising out of environmental damage.

Outside Inspection

Whilst undertaking an inspection outside the premises it was clear that many more drums, than were mentioned by the respondent in the interview, were kept to the side of the factory, on a hard standing - which was also used for deliveries - with no bunding. It was difficult to determine what these drums contained, although in the interview the respondent mentioned that hydraulic oil was kept on site. It is difficult to understand why so much oil was needed, and therefore, the actual content of these drums was unknown for the purposes of the survey.

At the rear of the premises was a cooling tower which provided the water to cool the machinery. Again no bunding was present around this facility.

Unit H Industrial Estate One

Gwent

Interview Date 13/09/94

The following was elicited from a 35 minute interview with the Quality Manager.

Processes and Legal Issues

The process carried on at this site involves the manufacturing of tool balances and electrical cable connections. This is basically a dry manufacturing process with very few solvents being used on site. The solvents are kept in a store in 1 litre cans. A small amount of paint is also used on site - about 50 litres of paint is stored on site.

The waste generated on site is predominantly cardboard, with a small amount of P.V.C. also being generated. The waste disposal company is Biffa, and the manager is aware of the duty of care under Section 33 of the EPA.

The company did not have any authorisation consent for trade effluents from Welsh Water, and all discharges were on a normal discharge to the public sewer. The interviewee did mention that solvents were used, albeit in small quantities.

Environmental Management

The company does not have a written environmental policy statement and an audit of the site has not been carried out. Audits of other sites in the company's ownership have been undertaken however, in the light of contamination problems suffered on these other sites. No single person is specifically responsible for environmental issues, although the operations manager and quality manager oversee environmental issues.

The company keep up to date with environmental legislation by newsletters from their solicitors (Eversheds, Phillips and Buck) and by being a member of Network

Wales. This network is a Government sponsored initiative and many of the tenants on Industrial Estate One are members. The idea behind the initiative is for tenants on the estate to collaborate with each other on environmental issues, allowing shared experiences to improve their overall performance.

The company does not have any set procedures for employees to follow when carrying out activities which could impact upon the environment. Employees have not received any training to ensure that they are carrying out their duties so as to comply with all relevant legislation.

The quality manager did mention that although his company did not have any immediate plans to become certified to BS 7750 or the EMAS scheme, he envisaged the day that they would be forced to go down that route by their customers. One customer, although a small client, has already taken its business elsewhere because the tenant could not demonstrate that it was improving its environmental performance. He thought that this pressure would grow over the next couple of years as customers will require their suppliers to perform to certain standards.

Finance

The Quality Manager also mentioned in the interview that the tenant has General Liability Insurance policy cover.

The company is a wholly owned subsidiary of a public company based in the United States. This company owns approximately eight different sites around the world, and is active in Canada and Singapore. The interviewee did mention that one of the sites in the US had been bought from another company who had contaminated the land. This land contamination had led to water contamination during the company's ownership and the company had been taken to court.

Outside Inspection

There did not appear to be any evidence of potential environmental problems from the outside inspection. There was no outside storage of chemicals, and no sign of any leaks or spillages.

Unit I Industrial Estate One

Gwent

Interview Date 12/09/94

The following was elicited from a 25 minute interview with the Managing Director.

Processes and Legal Issues

The manufacturing process involved turning yarns into fabrics, and it was essentially a dry manufacturing process, with very few chemicals and acids used. However, from the interview it was clear that some bleaching and dying does take place on the site. Welsh Water have allowed the tenant to discharge trade effluent into the public sewer under Section 118 of the WIA 1991. The appropriate trade effluent discharge consent has been obtained from Welsh Water. (See at the end of this interview).

The tenant needs to be careful that the discharges into the public sewer are within the limits of the authorisation. However, from the discussions with the Director it appears that the company has no formal way of monitoring its trade effluent to ensure that it is within the discharge authorisation limits.

The company use chemicals to dye and bleach, from the interview it is not obvious that storage of these chemicals is adequate. However, the interviewee did not see the chemical store, and it would be difficult to make a judgement in this respect.

Environmental Management

The tenant does not have a company environmental policy statement, and an environmental audit has not been undertaken of this site. The operations manager is responsible for environmental issues, along with a number of other duties. The tenant claims to be ensuring that it complies with all environmental legislation by checking production processes, and ensuring that the waste is secured in the Biffa

skips. The company do not subscribe to environmental publications or attend courses to ensure they are up to date with the latest environmental legislation.

Finance

The Company is an SME with 25 employees and operates from this site only.

The Director also mentioned in the interview that the tenant has General Liability Insurance cover.

Outside Inspection

There was no external storage of chemicals or substances, and no signs of contaminated soil or any other pollution.

Latest Conditions

04-Aug-94

File Ref	Occupier / Discharge Type / Notice Date	Division	Local Office	Address / Discharged to / Status	SIC	SPT Ref / Validation
43	[redacted]		Ebbw Vale	[redacted] Industrial Estate, [redacted] Gwent.		
	Crack Detection Dye.					
	23/01/87	SE	Ponthir	Current	2437	x - - -

Latest Conditions:			
	61 ph	LT	10
	61 ph	GT	6
	135 suspended solids 105 c	LT	1000 mg/l
	666 oil and grease	LT	500 mg/l
	9307 discharge hourly rate	LT	0.4 m3/hr
	9308 discharge daily volume maximum	LT	5 m3

129	[redacted]			[redacted] Industrial Estate, [redacted] Gwent.		
	Butchers Waste Dewatering.			W V T S - Newport	46124	
	17/02/89	SE	Ponthir	Current	4126	x - - -

Latest Conditions:			
	61 ph	LT	10
	61 ph	GT	5
	135 suspended solids 105 c	LT	1000 mg/l
	666 oil and grease	LT	500 mg/l
	3018 sewage vol daily total	LT	40 m3
	9307 discharge hourly rate	LT	2 m3/hr
	9308 discharge daily volume maximum	LT	40 m3

145	[redacted]			[redacted] Industrial Estate, [redacted] Gwent.		
	Textile Dying, Bleaching & Printing.			W V T S - Newport	46097	
	24/08/84	SE	Ponthir	Current	4370	x - - -

Latest Conditions:			
	61 ph	LT	10
	61 ph	GT	6
	76 temperature	LT	43 deg C
	135 suspended solids 105 c	LT	1000 mg/l
	183 sulphate	LT	1000 mg/l
	911 chlorine free (cl2 fr. and av.)	LT	1 mg/l
	3018 sewage vol daily total	LT	200 m3
	9307 discharge hourly rate	LT	50 m3/hr
	9308 discharge daily volume maximum	LT	200 m3

APPENDIX THREE

Interview with Principal Environmental Health Officer, relevant Borough Council. Date 20/10/94. This is the relevant Environmental Health Department in relation to Industrial Estate One.

There is one unit on the industrial estate which is registered under Part B of the Environmental Protection (Prescribed Processes and Substances) Regulations 1991. Unit 41, which is not included in the research project.

There is no reason why Part B processes cannot be carried out on industrial/business estates. A part B process can be carried on within a light manufacturing property, for example, a small paint spraying business, a small foundry where melting of metals is being carried on.

The borough is both the Waste Collection and Waste Disposal Authority. The local authority do, occasionally, collect waste from the industrial estate however, the waste is generally collected by waste carriers.

The local authority officers do visit commercial sites on occasions, for example, in response to an application for a licence or when following up on a complaint, and the interviewee was unaware that any tenant had caused any problems. It was also mentioned that no tenant had been prosecuted for a pollution offence by this authority.

There have been no statutory nuisances which have arisen from any tenant on the industrial estate. However, at the moment the local authority were investigating several complaints from nearby residents concerning a noise nuisance. This, at the moment, is thought to be emanating from the extraction units at two units on the industrial estate. One of the units is unit E in this research project, and the local authority will be undertaking further investigations to determine what action will be necessary to curtail the excessive noise levels.

The interviewee was of the view that it is possible that statutory nuisances could occur on such an industrial estate. It was envisaged that most nuisances from such an estate would be associated with noise and odour.

The interviewee was satisfied that we had talked about the main areas of local authority pollution control, i.e. LAAPC under Part B of Part I of the EPA, Waste under part II of the EPA and Statutory Nuisances under Part III of the EPA. It was mentioned, however, that the Clean Air Act should also be a concern of tenants and landlords. The emission of dark smoke from commercial/industrial properties is a criminal offence and tenants who decide to burn rubbish, including plastics etc., instead of paying for the waste to be disposed of, can be transgressing this piece of legislation.

The operation by a tenant of an EMS would make very little difference to the local authority as a regulator. They just want to know whether the tenant has the correct authorisations and whether it is complying with them. The EMS may help in this process but it would not guarantee it, therefore, it would not influence their decisions.

Comments. The interviewee mentioned that a number of companies which he has helped to become authorised under Part B of the EPA have been placed under direct market pressure to do so. The companies' customers have made it clear that unless compliance with all environmental legislation is a company policy, then they will go elsewhere for their products. They have even been required to speed up their timetable of improvements which occur under Part I of the EPA. For example, where a certain industry sector has two years to reduce emissions below a certain level, certain customers are demanding that these improvements actually take place prior to that deadline.

Interview with the Assistant Principal Officer, Environmental Health, relevant Borough Council. Date 07/09/94. This is the relevant Environmental Health Department in relation to Industrial Estate Two.

There is one unit on the industrial estate which is registered under Part B of the Environmental Protection (Prescribed Processes and Substances) Regulations 1991. Unit 1, which is not included in this research project.

There is no reason why Part B processes should not be found on industrial/business estates. Certain manufacturing processes, a small electro - plating Co. and other processes could fall under the control of the LAAPC system.

The borough is both the Waste Collection and Waste Disposal Authority. The interviewee outlined that the procedure for collecting waste on the estate is similar to other commercial estates. The company responsible for collecting waste will be a registered company which has a licence to be able to collect and dispose of waste. It would be unusual for the borough council to collect "controlled waste" themselves. They collect residential waste, but very rarely commercial waste.

The local authority officers do visit commercial sites on occasions, for example, in response to an application for a licence or when following up on a complaint, and the interviewee was unaware that any tenant had caused any problems. He also mentioned that no tenant had been prosecuted for a pollution offence by the authority. It was mentioned that it was not in the interests of responsible companies to participate in fly tipping and such like, the risks were now too high.

There have been no statutory nuisances which have arisen from any tenant on the estate.

It is possible that statutory nuisances could occur on such an industrial estate.

The interviewee was satisfied that we had talked about the main areas of local authority pollution control, i.e. LAAPC under Part B of Part I of the EPA, Waste under part II of the EPA and Statutory Nuisances under Part III of the EPA.

The interviewee stated that he would have far more confidence in a company if it had developed an EMS. It was argued that their control of the relevant legislation is much greater.

DŴR CYMRU
WELSH WATER

Mr N Turner
University of Glamorgan
Centre for Research in the
Built Environment
Pontypridd
Mid Glamorgan
CF37 1DL

Dyddiad/Date:
10 August 1994
Ymholiadau/Enquiries:

Ein Cyf/Our Ref:
SHL/CJW/TE

Eich Cyf/Your Ref:

Dear Neil

Trade Effluents

I refer to your letter of the 1st August concerning the questions you have on Trade Effluents.

1. Welsh Water is the statutory sewage and water undertaker for most of the Welsh region. I enclose a map which shows the area of mid Wales which is served by Severn Trent Water.

2. Yes to both questions.

3. Yes

I enclose copies of the Trade Effluent Consents that have been issued to Occupiers on the two Industrial Estates.

I am unable to provide you with answers to your remaining questions because of the restrictions in Section 206 of the Water Industry Act.

I hope the information will be useful. If you need any clarification then please contact me.

Yours sincerely

Selwyn Lewis
Consents Regulation Officer

Encs

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HER MAJESTY'S
INSPECTORATE OF POLLUTION
11th Floor Brunel House 2 Fitzalan Road Cardiff CF2 1TT
Telephone 0222 495558
Fax 0222 499924

Neil Turner
Centre for Research in the Built Environment
Room J125
University of Mid Glamorgan
Pontypridd
CF37 1DL

Your Reference
Our Reference UNIMGLAM/DB
Date 18 July 1994

Dear Mr Turner

THE ENVIRONMENTAL PROTECTION ACT 1990
THE ENVIRONMENTAL PROTECTION (PRESCRIBED PROCESSES AND SUBSTANCES) REGULATIONS 1991, SI 1991 NO 472 (AMENDED)
THE ENVIRONMENTAL PROTECTION (APPLICATIONS, APPEALS AND REGISTERS) REGULATIONS 1991, SI 1991 NO 507 (AMENDED)

Further to your fax dated 14 July.

There are no Part A processes operated by the firms listed on your fax. However, [redacted] Ltd operate a Part A process which was authorised on 13 January 1993. The process involves the production of lead acid batteries. This process was authorised under Section 4.5 (d) of the above regulation.

If you require any further information regarding this process, please contact Andrew Johnson, the site inspector on the above number.

Yours sincerely

Inspector Raised

SAMANTHA SALWAY

AAC
NRA

N.J.K.Turner
University of Glamorgan
Pontypridd
Mid Glamorgan
CF37 IDL

Our Ref:
RTP/M/PS/03

Your Ref:
Letter 13/7/94

September 7, 1994

Dear Mr Turner

Thank you for your letter dated the 13th July 1994, regarding information on the [redacted] and [redacted] industrial sites. I apologise for the delay in replying but the request involved several functions and area offices and took time to collate.

Please find enclosed a document which I hope will be of assistance, and I have also enclosed comments from functions.

If you have any further queries, please do not hesitate to contact this office,

Yours' sincerely

Sharon Gibbs
Assistant Technical Officer.

Dr JOHN STONER Rheolwr Cyfredinol Rhanbarthol / Regional General Manager
Awdurdod Afonydd Cenedlaethol, Rhanbarth Cymru / National Rivers Authority, Welsh Region
Plas-yr-Afon, Parc Busnes Llaneirwg, Llaneirwg, Caerdydd, CF3 0LT. Ffôn: (0222) 770088, Ffacs: (0222) 798555
Rivers House, St. Mellons Business Park, St. Mellons, Cardiff, CF3 0LT. Tel: (0222) 770088, Fax: (0222) 798555

APPENDIX FOUR

SEMI-STRUCTURED INTERVIEWS WITH ENVIRONMENTAL AUDITORS

Summary of information packs provided.

The following documentation is designed to allow the researcher to elicit your views concerning environmental risks associated with certain types of property. The questions which follow are broken up into three groups.

GROUP ONE QUESTIONS

The first group of questions relate to properties which have been visited by the researcher, a brief description of the industrial estate, and a summary of these visits is also provided. The researcher has interviewed the relevant personnel at each site and attempted to obtain information concerning the types of substances and processes which were carried out in these properties, and the management activities controlling them. It is acknowledged that more information would generally be available to you, however, it is hoped that you will be able to outline the likelihood of environmental incidents developing at each site.

GROUP TWO QUESTIONS

The second group of questions relate to potential environmental problems which can result from different land uses. Three slightly different land uses have been selected, and these are accompanied by a brief description of what uses are likely to be carried on within them. Please outline, from your own experience, whether each land use would permit uses which could give rise to environmental problems. If you are aware of any problems which have developed from these different types of uses could you please provide brief examples.

GROUP THREE QUESTIONS

The third group of questions relate to environmental management systems (EMSs) and the properties which have been inspected, and general questions relating to EMS.

INDUSTRIAL ESTATE ONE

Industrial Estate One consists of varying sizes of premises. It is located in the Gwent, in South Wales. It is situated in fairly mountainous terrain.

The estate was visited by the researcher and certain tenants were interviewed. The aim of these interviews was to determine what types of processes and activities which were being carried on in the properties, and whether environmental management activities were in place to reduce the prospect of environmental incidents occurring on site. The relevant statutory regulators were also contacted to obtain certain information.

It is hoped that the information collected by the researcher will allow you to make a judgement as to the potential environmental problems which could occur, and how the implementation of an EMS could reduce the prospect of any of these incidents occurring in the future.

Contents

1. Location Map (withheld due to confidentiality)
2. Correspondence with relevant statutory regulators
3. Results of tenant interviews (two tenants)

Correspondence with Relevant Statutory Regulators

The following enquiries were made to certain statutory regulators concerning Industrial Estate One. **The purpose of these enquiries was to make certain information available to you that would aid in forming opinions as to what type of environmental risks might exist on the estate.**

1. Local Authority

The Local Authority were contacted and visited, to ascertain information concerning their environmental responsibilities at the estate.

Local Authority Air Pollution Control

There is one unit on Industrial Estate One which is registered under Part B of the Environmental Protection (Prescribed Processes and Substances) Regulations 1991. This unit was not amongst the tenants interviewed by the researcher.

Waste Disposal

The borough is both the Waste Collection and Waste Disposal Authority. The local authority do, occasionally, collect waste from the estate. Generally, however, the waste is collected by waste carriers. There were no complaints, prosecutions or warnings outstanding against any of the tenants on the estate.

Statutory Nuisance

There have been no statutory nuisances which have arisen from any tenant on the estate. However, at the moment the local authority were investigating several complaints from nearby residents concerning a noise nuisance. This, at the moment, is thought to be emanating from the extraction units of two units. One of the factories is unit E of the study, and the authority will be undertaking further investigations to determine what action will be necessary to curtail the excessive noise levels.

2. Her Majesty's Inspectorate of Pollution

HMIP were contacted and the relevant personnel were questioned concerning Part A processes being carried on in units on the estate. Only one tenant operates a Part A process authorised under Section 4.5 (d) of the relevant regulation. The tenant which has this authorisation will be attached to the relevant case.

3. National Rivers Authority

The NRA Welsh region were contacted to determine whether any discharge consents into controlled water were held by any of the tenants on the estate. Information was also requested concerning the proximity of controlled waters and whether any abstraction licences existed nearby.

Discharge Consents

There are no discharges to controlled waters from the estate, they are all to sewer.

Groundwater Vulnerability

The industrial estate is not located in a groundwater vulnerability area, or in a source protection zone.

Controlled Water (Names blanked to safeguard confidentiality).

The closest controlled waters are the River [redacted] and [redacted] On the location map, [redacted] runs from the [redacted] reservoir at reference D4, southwards. It is approximately 1 km from the industrial estate at [redacted] (grid reference D2). [redacted] is at grid reference B1, and is approximately 0.75 - 1.0 km away from the estate. The NRA did not mention [redacted] Brook to the researcher in his correspondence. This was rather unexpected since the Brook, and the source of the Brook in particular, are very close to the estate. [redacted] Brook is at grid reference C2, and the source of the Brook is in the top left hand corner of C2. This is almost contiguous with the industrial estate.

Abstraction Licences

The NRA were contacted and a number of abstraction licences were found to exist in relatively close proximity to the industrial estate. They were as follows: [redacted] [redacted]Reservoir (Potable Water) grid reference C4; [redacted] [redacted] Reservoir (Potable Water) grid reference D4; [redacted] [redacted] (Industrial) grid reference C1; and [redacted] [redacted] [redacted] (Industrial) grid reference C-D2.

4. Statutory Water Company

Trade Effluents

Welsh Water are the statutory sewage and water undertaker for most of the Welsh region. Correspondence was entered into with them, and those units which have a trade effluent discharge consent will be identified in the tenant response section. The undertaker was also asked whether it would be possible to be made aware of any outstanding applications for effluent consents, and whether there had been any correspondence between them and the occupiers in relation to failing to comply with conditions or possible legal action. Welsh Water were unable to supply this information due to the restrictions imposed by section 206 of the Water Industry Act.

INDUSTRIAL ESTATE TWO

Industrial Estate Two is a strategic 135 acre industrial park consisting of varying sizes of premises and land plots available for business use. It is located in West Glamorgan, South Wales.

The park was visited by the researcher and certain tenants were interviewed. The aim of these interviews was to determine the types of processes and activities which were being carried on in the properties, and whether environmental management activities were in place to reduce the prospect of environmental incidents occurring on site. The relevant statutory regulators were also contacted to obtain certain information.

It is hoped that the information collected by the researcher will allow you to make a judgement as to the potential environmental problems which could occur, and how the implementation of an EMS could reduce the prospect of any of these incidents occurring in the future.

Contents

1. Location Map (withheld due to confidentiality)
2. Correspondence with relevant statutory regulators
3. Results of tenant interviews (two tenants)

Correspondence with Relevant Statutory Regulators

The following enquiries were made to certain statutory regulators concerning Industrial Estate Two. **The purpose of these enquiries was to make certain information available to you that would aid in forming opinions as to what type of environmental risks might exist on the estate.**

1. Local Authority

The Local Authority were contacted and visited to ascertain certain information concerning their environmental responsibilities at the estate.

Local Authority Air Pollution Control

There is one unit on the industrial estate which is registered under Part B of the Environmental Protection (Prescribed Processes and Substances) Regulations 1991. This unit was not amongst the tenants interviewed by the researcher.

Waste Disposal

The borough is both the Waste Collection and Waste Disposal Authority. The borough outlined that the procedure for collecting waste on the estate is similar to other commercial estates, i.e. that all waste should be collected by a registered waste carrier. There were no complaints, prosecutions or warnings outstanding against any of the tenants on the estate.

Statutory Nuisance

There have been no statutory nuisances which have arisen from any tenant on the estate.

2. Her Majesty's Inspectorate of Pollution

HMIP were contacted and the relevant personnel were questioned concerning Part A processes being carried on in units on the estate. There are no Part A processes carried out on the estate.

3. National Rivers Authority

The NRA Welsh region were contacted to determine whether any discharge consents into controlled water were held by any of the tenants on the estate. Information was also requested concerning the proximity of controlled waters and whether any abstraction licences existed nearby.

Discharge Consents

There are no discharges to controlled waters from the estate, they are all to sewer.

Groundwater Vulnerability

The industrial estate is not located in a groundwater vulnerability area, or in a source protection zone.

Controlled Water (Names blanked to safeguard confidentiality)

The closest controlled water is the [redacted] Estuary which is identified on the location map. The estuary is approximately 2.5 km from the estate (grid reference A:4 on the location map).

Surface Water

Surface water drains from the industrial estate into [redacted] Brook and is then pumped (by Welsh Water) to the [redacted] Estuary. ([redacted] Brook starts at grid reference B2 and joins the Estuary at reference A4).

Abstraction Licences

Unfortunately, no information could be obtained from the NRA concerning the closest abstraction licences held in the vicinity of the industrial estate.

4. Statutory Water Company

Trade Effluents

Welsh Water are the statutory sewage and water undertaker for most of the Welsh region. Correspondence was entered into with them, and those units which have a trade effluent discharge consent will be identified in the tenant response section. The undertaker was also asked whether it would be possible to be made aware of any outstanding applications for effluent consents, and whether there had been any correspondence between them and the occupiers in relation to failing to comply with conditions or possible legal action. Welsh Water were unable to supply this information due to the restrictions imposed by section 206 of the Water Industry Act.

ENVIRONMENTAL AUDITOR QUESTIONNAIRE

GROUP ONE QUESTIONS (PROPERTIES INSPECTED)

Site Specific Questions

1a) Is there a possibility of land contamination occurring due to the occupying tenant's activities? Yes/No.
If yes, please outline how this may occur.

1a1) If yes, please rate the possibility of land contamination occurring; High Medium or Low.

1b) Is there a possibility of water pollution occurring due to the occupying tenant's activities? Yes/No.
If yes, please outline how this may occur.

1b1) If yes, please rate the possibility of water pollution occurring; High Medium or Low.

1c) Is there a possibility of waste being disposed of or stored incorrectly due to the occupying tenant's activities? Yes/No.
If yes, please outline how this may occur.

1c1) If yes, please rate the possibility of waste being disposed of or stored incorrectly; High Medium or Low.

1d) Are there any other environmental incidents which could occur on site which would lead to action by the relevant regulatory authority, for example, non-compliance with Parts I, II or III of the EPA 1990? Yes/No.
If yes, please outline how this may occur.

1d1) If yes, please rate the possibility of these environmental incidents occurring; High Medium or Low.

1e) Are there any environmental incidents which could occur on site which would lead to action by third parties under civil law? Yes/No.
If yes, please outline how this may occur.

1e1) If yes, please rate the possibility of the these environmental incidents occurring High Medium or Low.

ENVIRONMENTAL MANAGEMENT SYSTEMS

1f) From the information you have been supplied with please choose one of the following which best describes the effectiveness of the tenant's environmental management practices.

Good
Satisfactory
Unsatisfactory
Poor

GROUP TWO QUESTIONS (LAND USES)

General Questions

2a) Would you expect to find any potentially contaminating, and/or polluting, activities carried on in properties which fall within the following Use Classes?

Class B1. Business Use for all or any of the following purposes -
a) as an office other than a use within class A2 (financial and professional services),
b) for research and development of products or processes, or
c) for any industrial process,
being a use which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibration, smell, fumes, smoke, soot, ash, dust or grit.

2a) Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

Class B2. General Industrial Use for the carrying on of an industrial process other than one falling within class B1 above or within classes B4 to B7 below.

Classes B4 to B7 are special industrial groups, normally associated with heavy industries, for example, oil refineries, power stations and steel works. B2 properties are normally associated with manufacturing and engineering type processes.

2b) Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

Class B8. Storage or Distribution Use for storage or as a distribution centre.

2c) Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

GROUP THREE QUESTIONS
(ENVIRONMENTAL MANAGEMENT SYSTEMS)

General Questions relating to all properties, not necessarily the ones visited by the researcher. However, if you feel it appropriate to use any of the sites which were visited to illustrate a point please do not hesitate.

3a) Would the fact that a tenant was certified to the British Standard 7750 (specification for an Environmental Management System), or any other approved standard for environmental management/auditing, reduce the likelihood of environmental incidents occurring on site, i. e. potential pollution, contamination and/or transgressions of environmental legislation.

Yes/No.

3b) Please discuss **how** the implementation of an EMS by a tenant would reduce the likelihood of environmental incidents occurring on site?

Discussion

Environmental Policy

Organisation and Personnel

Environmental Effects/Register of Regulations

Environmental Objectives and Targets

Environmental Management Programme

Environmental Management Manual and Documentation

Operational Control

Environmental Management Records

Environmental Management Audits

Environmental Management Reviews

3c) Could a tenant improve its competitiveness by developing an EMS? Yes/No.

Discussion

The demonstration of environmental management practices is becoming increasingly important to various stakeholders. In your experience have companies gained a competitive advantage from developing an EMS through, for example;

Lower insurance premiums

Lower bank lending rates

Satisfying clients/customers

Any others, please outline

3d) Could a tenant improve efficiency and reduce costs by developing an EMS?

Discussion

Lower waste disposal costs

Lower energy requirements

Lower raw material input

Any other potential cost savings, please outline

APPENDIX FIVE

SEMI - STRUCTURED INTERVIEWS WITH ENVIRONMENTAL LAWYERS

PLEASE NOTE: YOUR RESPONSE WILL BE TREATED IN THE STRICTEST CONFIDENCE

The questions which follow are designed to encourage an in-depth discussion concerning the potential for landlords to suffer environmental liabilities due to their tenant's poor environmental performance. The questions are divided into three groups:

The first relates to the increasingly important issue of potential environmental liabilities which may face a landlord as a result of a tenant's polluting activities.

The second group of questions relate to potential environmental problems which can result from different land uses. Three slightly different land uses have been selected, and these are accompanied by a brief description of what uses are likely to be carried on within them. Please outline, from your own experience, whether each land use would permit uses which could give rise to environmental problems. If you are aware of any problems which have developed from these different types of uses could you please provide brief examples.

The third group of questions relate to environmental management systems (EMSs) and are aimed at determining your views on how effective EMSs could be in reducing the likelihood of environmental incidents occurring on site. This group of questions will also try to determine your views on the potential benefits EMSs may offer both Landlords and Tenants.

GROUP ONE QUESTIONS (POTENTIAL LANDLORD LIABILITY).

1a) Is it your view that the ambiguous wording found in various pieces of environmental legislation could leave landlords open to prosecution by the relevant regulatory authority, as a result of a tenant's polluting activity?

Yes/No.

1b) If yes, please outline some, or all, of the relevant pieces of environmental legislation, and the circumstances under which this may occur.

1c) A common approach by landlords, attempting to avoid environmental liabilities, is to "control" in some way the activities which a tenant is permitted to carry out. This may be by way of a covenant within a lease dictating that only certain processes and activities can be carried out on site, and that the tenant must comply with all environmental legislation. Could it be argued by the regulators, and supported by the courts, that by imposing these covenants the landlord will be exercising some degree of control over the tenant?

Yes/No.

1d) If yes, please discuss the possible implications for prosecution of the landlord by the regulatory authorities.

1e) The "power to prevent" and "knowledge of" a pollution incident are important elements to establish in a successful prosecution of a pollution offence. If the leas provides the landlord with the power to enter premises to determine whether the tenant is complying with a covenant "to comply with environmental legislation" for example, will this qualify as "power to prevent" or "knowledge of" a pollution incident?

Please discuss.

1f) Could this become a possible source of litigation between the regulatory authorities and landlords?

1g) Could a similar argument be used against landlords in claims by third parties for losses suffered due to environmental damage?

Yes/No.

1h) For example, the Cambridge Water case established that for a party to be liable for environmental damage under common law, the damage must have been "foreseeable". Where the landlord has the right to access premises, and therefore, knowledge of whether the tenant is carrying out processes in a safe manner, could a third party claim that the landlord could/should have foreseen the relevant pollution incident?

Please discuss.

1i) Please outline any other areas of environmental law which landlords need to be aware of in relation to potential environmental liabilities.

GROUP TWO QUESTIONS (LAND USES)

2a) Would you expect to find any potentially contaminating, and/or polluting, activities carried on in properties which fall within the following Use Classes?

Class B1. Business Use for all or any of the following purposes -

a) as an office other than a use within class A2 (financial and professional services),
b) for research and development of products or processes, or
c) for any industrial process,

being a use which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibration, smell, fumes, smoke, soot, ash, dust or grit.

Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

Class B2. General Industrial Use for the carrying of an industrial process other than one falling within class B1 above or within classes B4 to B7 below.

Classes B4 to B7 are special industrial groups, normally associated with heavy industries, for example, oil refineries, power stations and steel works. B2 properties are normally associated with manufacturing and engineering type processes.

2b) Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

Class B8. Storage or Distribution. Use for storage or as a distribution centre.

2c) Yes/No.

If yes, please provide examples which, in your experience, has given rise to a pollution/contamination problem.

GROUP THREE QUESTIONS (ENVIRONMENTAL MANAGEMENT SYSTEMS).

3a) Would the fact that a tenant was certified to the British Standard 7750 (specification for an Environmental Management System), or any other approved standard for environmental management/auditing, reduce the likelihood of environmental incidents occurring on site, i.e. potential pollution, contamination and/or transgressions of environmental legislation.

Yes/No.

3b) Please discuss **how** the implementation of an EMS by a tenant would reduce the likelihood of environmental incidents occurring on site.

Discussion

Environmental Policy

Organisation and Personnel

Environmental Effects/Register of Regulations

Environmental Objectives and Targets

Environmental Management Programme

Environmental Management Manual and Documentation

Operational Control

Environmental Management Records

Environmental Management Audits

Environmental Management Reviews

3c) Could a tenant improve its competitiveness by developing an EMS? Yes/No.

Discussion

The demonstration of environmental management practices is becoming increasingly important to various stakeholders. In your experience have companies gained a competitive advantage from developing and EMS through, for example:

Lower insurance premiums

Lower bank lending rates

Satisfying clients/customers

Any others, please outline.

3d) Could a tenant improve efficiency and reduce costs by developing an EMS?

Discussion

Lower waste disposal costs

Lower energy requirements

Lower raw material input

Any other potential cost savings, please outline

3e) The House of Lords' decision in the Cambridge Water Company case means that a company cannot be strictly liable for past pollution if it did not foresee the consequences at the time. Will the development of an EMS make it easier for

that tenant to demonstrate to a court that any pollution incident that did occur was unforeseeable?

Please Discuss

3f) If a landlord was inclined to help a tenant establish an EMS, would that landlord be susceptible to the charge that it was aware of what the tenant was doing, and, therefore, aware of any practices which resulted in a pollution incident, thereby possibly "knowingly permitting" a pollution offence?

Please Discuss.

APPENDIX SIX

SEMI - STRUCTURED INTERVIEWS WITH PROPERTY INVESTORS

PLEASE NOTE: YOUR RESPONSE WILL BE TREATED IN STRICT CONFIDENCE

Introduction by Interviewer

The questions which follow are designed to encourage an in-depth discussion concerning the property investment decision-making process at the stock selection level, and any influence which the environmental performance* of the occupying tenant may have on that process. Some questions are, therefore, followed by a brief paragraph which **may** form the basis of further discussion. The questions on the front cover quite simply allow the researcher to determine the size of the property investment market which has been included in the interview process, and all figures (and opinions) are to be kept confidential unless the interviewee expresses otherwise.

* The term "Environmental Performance" refers to the level of awareness, the policies and the management practices displayed by the tenant in order to reduce the risk of environmental damage being caused by that tenant.

Name of fund:

Job description of respondent:

Date:

Size of Property Portfolio: £

Percentage of Property Portfolio invested in "Industrial Type"* Property: %

Percentage of "Industrial Type" Property invested in the various sectors of Part B of the Use Classes Order:

Class B1 (Business)

Class B2 (General Industrial)

Classes B4-B7 (Special Industrial Groups)

Class B8 (Storage or Distribution)

* "Industrial Type Property" is defined, for the purposes of this research, as any property which falls within Part B of the Use Classes Order 1987. The definition, therefore, includes property in Classes B1, B2 and Classes B4 to B8 of the UCO. **If your fund defines "industrial type" property in any other way please outline it below.**

Section One. Strategy

1a) Has the fund strategy been altered due to environmental developments which have taken place over the last few years?

Yes/No

If yes, how?

Discussion *For example, the plethora of environmental legislation now facing tenants, the spectre of more legislation from both the EU and UK Government, and the uncertainty over the issue of contaminated land, could mean that holding industrial type property as investments today is more risky than before the advent of this wave of environmental developments.*

1b) Has this been reflected at all in fund strategy by a lower allocation to this type of property?

Yes/No

1c) Are you more concerned with specific risk factors or market wide factors concerning the performance of your property portfolio?

Specific Risk

Market Risk

Discussion *Why? (PTO)*

1c1) Is it your view that your property portfolio is adequately diversified, and therefore, specific risk factors are less important?

Yes/No

1c2) Do you consider it always important to consider specific risks however large the portfolio?

Yes/No

Section Two. Existing Practices

2a) Have you attempted to limit/control the environmental risk which exists within your property portfolio?

Yes/No

Which of the following have been used to achieve this? They may relate to the process of acquiring properties in occupation, or relate to the letting of properties already within your portfolio.

2b) Are environmental investigations carried out on sites which are about to be acquired for your portfolio?

Yes/No

If yes, **briefly** outline what these investigations involve.

2c) Would these investigations include an assessment of the occupying tenant's potential to cause environmental damage?

Yes/No

2d) Would these investigations include an assessment of the occupying tenant's environmental management practices?

Yes/No

2e) Are environmental investigations carried out of sites which are already in your ownership?

Yes/No

2e1) If yes, **briefly** outline what these investigations involve.

2f) Would these investigations include an assessment of the occupying tenant's potential to cause environmental damage?

Yes/No

2g) Would these investigations include an assessment of the occupying tenant's environmental management practices?

Yes/No

2h) Under which circumstances are these audits most likely to be carried out?

Discussion For example, would these investigations only relate to industrial properties located in traditional industrial areas, or do they relate to every property purchased or owned?

Section Three. Leasing Practices

3a) When new leases are drafted do they reflect environmental issues?

Yes/No

3a1) Discussion For example, in the light of the contaminated land issue and other environmental developments, have new leases been altered to reflect this situation?

Yes/No

If leases are being drafted to reflect these issues, which, if any, of the following have been implemented.

3b) Have user covenants become more restrictive?

Yes/No

3b1) Discussion For example, have you become more concerned about the type of tenant processes and activities which are permitted to be carried out within your property in the light of potential environmental problems?

Yes/No

3c) Are there restrictions on sub-letting and assignment?

Yes/No

3c1) Discussion For example, do you, as landlord, need to be satisfied with the new occupier on environmental grounds?

3d) Do tenants have to covenant to comply with all environmental legislation?

Yes/No

3d1) Discussion. Is "environmental legislation" specifically mentioned, or must the tenant covenant to comply with all legislation in general?

Yes/No

3e) Are rights of entry and inspection available to the landlord to determine the tenant's compliance with covenants?

Yes/No

3f) Please indicate any other amendments which have been made to leases to reflect environmental developments.

Section Four. Warranties and Indemnities

4a) Are indemnities and warranties sought, concerning the state of the land in relation to environmental problems, from the vendor when purchasing property?

Yes/No

4b) Are indemnities and warranties sought, concerning the state of the land in relation to environmental problems, from the tenant when letting property?

Yes/No

4c) Are inspections planned, or do they already occur, of premises at the termination of a lease to ensure that the land has not been polluted or contaminated?

Yes/No

Section Five. Environmental Management

5a) Do you consider the "environmental performance" of the occupying tenant when making property investment decisions at the stock selection level?

Yes/No

5b) If so, how is this taken into account?

- When undertaking an environmental audit of the site.
- A separate investigation, including asking regulatory authorities about the legal compliance record of the occupying tenant.
- Any other method.

5c) Would a demonstrably poor "environmental performance" on the part of a tenant prevent you from purchasing a property?

Never

Possibly in the future

It already does

5d) Would a demonstrably poor "environmental performance" on the part of a tenant influence your risk assessment of a prospective property investment?

Never

Possibly in the future

It already does

5e) Would a demonstrably poor "environmental performance" on the part of a tenant influence your bid price for a property investment?

Never

Possibly in the future

It already does

5f) Would the fact that a tenant was certified to the British Standard 7750 (specification for an Environmental Management System), or any other approved standard for environmental management/auditing, influence your risk assessment of the property as a prospective investment?

Never

Possibly

It already does

Section Six. Conditions under which the "environmental performance" of the tenant becomes a relevant consideration in the investment decision making process.

The following section aims to determine under which circumstances you feel it is necessary to consider the "environmental performance" of an occupying tenant in the property investment decision making process. Below are a series of questions in bold. Please indicate which questions would be relevant to your decision of whether to include the tenant's environmental performance in the property investment decision making process. Please also indicate the question's relative importance in the decision to include the tenant's environmental performance in the property investment decision making process.

For example, if you feel that it would be relevant to know whether or not the tenant is capable of causing environmental problems on site, before including the tenant's environmental performance in the investment decision making process, you should tick "yes". It will then be necessary for you to describe how important the fact that the tenant carries out potentially polluting activities is to the decision to include the environmental performance of the tenant in the investment decision making process.

Tenant

6a) **Is the tenant, through activities/processes carried out on site, capable of causing environmental problems?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

6b) **Does the tenant, or a parent, subsidiary or associated company of the tenant, undertake substantial industrial undertakings off-site so as to be capable of causing contamination/pollution problems?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Discussion

The tenant, as part of a larger organisation, may have substantial industrial undertakings off-site, which could lead to environmental problems for the wider company, and, therefore, possibly undermine the covenant of the tenant occupying the prospective property investment.

6c) **Is the tenant in a position to be able to absorb environment related losses?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Discussion

The cost of environmental liabilities continue to grow, and, therefore, covenant strength will have a bearing on the tenant's ability to pay for clean up. If the tenant is incapable of paying liability could pass to the landlord.

6d) **Does the tenant enjoy insurance cover for losses caused through claims for environmental damage?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Leasing Arrangements

6e) **Are leasing arrangements, such that they offer protection to the landlord in respect of potential environmental problems caused by the tenant, in place?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

6f) **Is there an indemnification from the tenant to protect the landlord from environment related loss?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Location of Property

6g) **Is the property situated close to sensitive environmental media, for example, a water course, or permeable strata, which would allow any pollution that did occur to migrate to other sites or sensitive environmental media?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Size of the Tenant

6h) **Is the tenant a large multi - national company or a small company?** Yes/No.

Relative Importance Very Important
Important
Not Important
Not at all Important

Discussion

At a very practical level it may be that taking into account the environmental performance of the occupying tenant in property investment decisions has more relevance to smaller tenants than larger ones. To assess the environmental risk of a large multi-national company which has many different sites in many different countries subject to various legal systems and market pressures would be very difficult to do.

The environmental performance of smaller companies is potentially far more serious because banks and insurance companies will be more likely to turn them away on environmental grounds than, BP, for example, who may be a large customer. Therefore, the environmental performance of these smaller companies could impact disproportionately upon their economic performance. It is also often the case that the larger companies tend to be better managed.

Type of Property

6i) **Is the property a higher yielding lower growth type property?** Yes/No.

Relative Importance	Very Important
	Important
	Not Important
	Not at all Important

Discussion

The fact that some properties can be described as low growth high yielding investments, which rely more on present cash flow than on growth prospects for their generation of value, may also be relevant when considering the environmental performance of occupying tenants. The security of the present income will play a major role in the determination of the value of such investments, and any system which strengthens this present income will find its way into the considerations of property investors of these types of property.

Fund Size

6j) **Is the property portfolio large or small?** Yes/No.

Relative Importance
- Very Important
- Important
- Not Important
- Not at all Important

Discussion

Broadly speaking, unsystematic risks are more critical for smaller funds, due to their inability to diversify away individual property factors. This suggests that the risks attached to the environmental performance of a tenant, being a specific risk, will be more important to smaller funds and property investment companies.

Fund Structure

6k) **The structure of the fund?** Yes/No.

Relative Importance
- Very Important
- Important
- Not Important
- Not at all Important

Discussion

If forecasts suggested that the industrial property sector was due to perform particularly well, or the returns of which were expected to be lowly correlated with other property sectorsand other asset classes in the future, it may be relevant to consider the environmental performance of the tenant at

fund structure level. By including this consideration at this level, it would be possible to hold environmentally risky assets, which may have a low correlation of returns with other assets in the portfolio, therefore allowing market risk to be reduced whilst minimising the specific environmental risk which exists.

General Economic Climate

6m) **The general economic climate?** Yes/No.

Relative Importance
- Very Important
- Important
- Not Important
- Not at all Important

Discussion

If income security remained an important factor in the valuation of properties throughout the 1990s (more so than in the last decade) then it is probable that ***if*** *the environmental performance of tenants could help reduce this risk it would be taken into account by investors.*

6n) **Are there any other conditions under which you feel it is necessary to consider the environmental performance of the occupying tenant? Please outline them below.**

APPENDIX SEVEN

SEMI - STRUCTURED INTERVIEWS WITH THE BANKS

PLEASE NOTE: YOUR RESPONSE WILL BE TREATED IN STRICT CONFIDENCE

Introduction by Interviewer

The following questions are designed to encourage an in-depth discussion concerning your attitude towards property investment companies and environmental issues. The survey is particularly interested to elicit Banks' attitudes towards the question of environmental risk inherent in lending money to property investment companies to acquire industrial type property, and whether the Environmental Management System concept can reduce this element of risk. The questions on the front cover quite simply allow the researcher to determine the size of the property investment market which has been included in the interview process, and all figures (and opinions) are to be kept confidential unless the interviewee expresses otherwise.

Questions.

Name of Bank:

Job Description of Respondent:

Date:

Outstanding loans to Property Investment Companies: £

Outstanding loans to Property Investment Companies to purchase industrial type property as a percentage of total property loans: %

1) Has your attitude to property investment company lending been influenced by environmental issues?

Yes/No

If yes, how has it changed?

2) What are your main environmental concerns when lending to property investment companies in order to allow them to purchase tenanted industrial property? Please indicate which of the following are concerns, and outline their relative importance by attaching one of the following to them: "very important", "important", "not important", "Not at all important".

- the past use of the site;
- the present use of the site;
- plans for the future use of the site;
- the physical condition of the site;
- the tenant's regulatory compliance record;
- the tenant's environmental management practices;
- the extent to which the tenant is insured against environmental liability;
- Any others please specify.

3) Has your bank decreased its lending to property investment companies, and specifically those involved in industrial type property investment, due to environmental issues?

Yes/No

If yes, please explain why.

4) Would a loan which has been used to purchase an industrial property be more secure if the occupying tenant has developed an Environmental Management System (EMS) such as those envisaged under BS 7750?

Yes/No

If yes, please explain why.

5a) Would you be more likely to fund industrial property investment where the tenants of those properties had developed EMSs?

Yes

Probably in the future

Possibly in the future

Never

Please explain why.

5b) Would these EMSs reduce the risk of that loan viz a viz another loan made to a company investing in industrial property where no environmental management policies were carried out by tenants?

Yes
Probably in the future
Possibly in the future
Never

Please explain why.

5c) If the risks attached to the loan secured on properties with tenants displaying environmental management practices have been reduced, would this fact be evident in the cost of finance to the relevant property investment company?

Yes
Probably in the future
Possibly in the future
Never

Please explain why.

5d) Would these reduced risks be reflected in the loan agreement in any other way?
Yes/No
If yes, please explain why.

6a) Would EMS's operated by tenants occupying property you have funded as investments, address any of your environmental concerns?
Yes/No

6b) If yes, which ones?

6c) Why would the implementation of an EMS by the occupying tenant address these concerns?

7a) Are any environmental procedures imposed by you as lender to the property investment company, to control/measure environmental risk when using bank finance to fund property investment, (particularly industrial property investment)?

Yes
Probably in the future
Possibly in the future
Never

7b) If yes, what are/would be these procedures?

8) Does your bank provide finance to property investment companies for medium/long term property investment, or is the finance that you provide to this sector predominantly for development projects and of a short term nature?

9) Do you envisage the Banks providing finance for property investment companies for medium/long term property investment in the future?

Yes/No

APPENDIX EIGHT

PUBLICATIONS ARISING FROM THE RESEARCH

Refereed Journals

Turner, N. J. K., Gronow, S. A., and Pritchard, P. Assessing the environmental risks of property investment portfolios. *Journal of Property Finance,* Volume 5. Issue 4, pp 69-85, 1995.

Turner, N. J. K, Bennett, L, Prescott, G, and Gronow, S. A. Assessing and Managing the Environmental Risks of Property Ownership. *Journal of Property Management*, Volume 12 Number 2, pp 5-15, 1994.

National Property Journals

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Assessing the Environmental Risks of Property Investment Portfolios

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Introduction

Every landlord of commercial and industrial property will be subject to a certain degree of "environmental risk". This term can be defined as the risk that environmental developments, whether in the legal, political, social or economic context, will impact on the return offered by a property investment.

The environmental risks associated with the ownership of property emanate from many different sources. Some properties are situated on contaminated land, and if the original purchase price does not reflect any anticipated clean-up costs – the property may have been purchased before contaminated land became an issue – then at some stage the capital value is likely to be affected, and ultimately the total return reduced. This is, perhaps, the greatest environmental risk which is faced by property investors, and most investors commission at least a desk top study (an investigation into historical uses) to ensure that either they avoid such land, or the level of environmental risk is reflected in the price that they pay.

The built environment is not exempt from the growing market for green products and the introduction of environmental labelling schemes. Logic suggests that properties which perform to the highest environmental standards, and therefore satisfy those companies which wish to locate, or wish to be seen to be locating, in green buildings, will enjoy increased levels of demand and higher rental growth at the expense of those buildings which are less friendly to the environment. It should be noted that the Prudential, one of the UK's largest property investors, has stated this could be the case[1]. This process can only be facilitated by schemes such as the *Building Research Establishment Environmental Assessment Method*[2] and the Building Research Services and Information Association's Environment Code of Practice[3].

There is an ever-increasing amount of pressure being placed on the Department of Transport to move away from its long-standing encouragement of the use of the private motor car, towards a greater emphasis on public transport. Indeed some have argued[4] that the UK's strategy on Sustainable Development is evidence that this shift has already taken place. The recent authoritative and influential report from the Royal Commission on

al of Property Finance,
4 No. 4, 1994, pp. 68-83
University Press, 0958-868X

Environmental Pollution[5] has attacked the road-building programme at its base, and has called for a doubling of petrol prices over the next ten years. It seems likely that industry will have to cope with significantly higher road transport costs over the next ten years. This could result in higher demand for distribution centres, and perhaps other types of property, which are capable of taking advantage of emerging rail networks.

Aims

This article examines one aspect of environmental risk, and highlights information sources and tools which are being developed to aid in its assessment. It argues that the environmental risk which stems from an occupying tenant's potential to cause pollution incidents, is not exclusive to heavy industrial, owner-occupied property which fall within the special industrial groups of the use classes order (UCO) 1987. To support this argument, potentially polluting processes are shown to exist in the B1, B2 and B8 classes of the UCO. Furthermore, this type of environmental risk is capable of being divided into "direct environmental risk" and "indirect environmental risk".

Direct environmental risk is concerned with the tenant's ability to cause a pollution/contamination incident on the landlord's property, and is a function of a number of site specific factors, not least of which is the activities which the tenant carries out on site. Indirect environmental risk relates to the type of activities the tenant carries on throughout his organization, and is concerned with the scope for environment-incurred losses to undermine the financial standing of the tenant, or even to cause its financial failure. As the Royal Institution of Chartered Surveyors have made clear[6] it is, therefore, not only historic contamination/pollution problems which create environmental risks; present uses can also be potentially polluting and therefore risky. Evidence that the property investment market is arriving at the same conclusion is provided by Hillier Parker's 1994 environmental survey which highlighted that 67 per cent of property investors have investigated present occupiers' use of premises to assess levels of environmental risk[7].

Since institutional and property investment company portfolios invariably contain an element of industrial property – although the weighting given to industrial, and the weighting between different types of industrial property varies – such portfolios will be exposed to direct environmental risks. For example, at the end of 1993, industrial property represented 15 per cent, as a weighting of total value, of the IPD annual index[8]. While much of this 15 per cent will be made up of properties occupied by tenants carrying on activities which do not pose direct environmental risks, it is unlikely that the entire portfolio will be completely devoid of potentially polluting tenants. Moreover, certain property investment company portfolios have much higher allocations to B2-type industrial property and are, therefore, potentially subject to higher levels of direct environmental risk. However, as outlined below, it is not the type of property in ownership which necessarily determines the level of environmental risk, it is the tenant's use of the premises which is paramount.

Identifying Environmental Risk

There are various ways in which property investors can identify whether they are subject to high levels of direct environmental risk.

Planning Control System

The land use planning system is, potentially, a useful tool in identifying environmental risks. Structure plans, local plans and unitary development plans all must have regard to the amenity of land and the improvement of the physical environment[9], and environmental considerations should be taken into account in drawing up all development plan policies[10]. Planning policy guidance notes also suggest that planning authorities need to identify land for potentially polluting processes, and that this land should be away from other land uses in order to reduce conflict[11].

The planning control process is nonetheless a broad brush approach to the identification of environmental risk. It concentrates very much on the heavily polluting processes, and ensures that these are located away from sensitive environmental media, or that appropriate planning agreements are entered into to guarantee that the operator introduces measures to minimize the risk of contamination or pollution. It does this by zoning areas of land, and allocating appropriate land use planning permissions to different areas. It is not, nor was it designed to be, a comprehensive environmental risk identification system, since it concentrates on areas of land rather than individual properties. This zoning of land into the various groups of the use classes order (UCO), allows a wide range of activities to be carried out – in terms of their potential to cause harm to the environment – within one area. The UCO, therefore, is limited in its ability to identify environmental risk because the myriad factors which influence whether a use is B1, B2 or B8, for example, do not necessarily indicate the potential for that use to cause environmental damage.

The Use Classes Order

Tenants carrying out processes which can cause environmental damage and result in action by the relevant regulators in statute law, or third parties at civil law, do not necessarily occupy properties which fall within Groups B4 to B7 of the UCO; i.e. those uses typically described as heavy industrial. A brief review of the UCO highlights that potentially polluting processes can be carried on in the other classes of industrial property.

For example, B1 uses can include "...the development and manufacture of computers, micro-engineering, biotechnology, pharmaceutical research and manufacture – provided always that such use could be carried on without detriment to the amenities of a residential area by reason of noise, vibration and smell, etc."[12] The use of solvents, chemicals, oil-based substances and the waste generated on site – both liquid and solid – by such activities have the potential to cause environmental damage. This, of course, was recognized by the proposed section 143 registers where some of these uses are listed as potentially contaminative (see Registers of Contaminated Land Section). Other

commentators have also arrived at this conclusion arguing that: "...a class B1 business use permits the carrying on of industrial processes which could have significantly polluting effects"[13] and that; "Contaminative uses are likely to cover not only the recognised processes of producing energy, chemicals, raw materials and waste disposal but also operations like the...use of laboratories for educational or research purposes..."[14]

The Foliejon case (See Case Law Section) also demonstrates that the activities of such premises can be very polluting. It should also be recognized that there are a considerable number of prescriptive environmental legislative requirements relating to the heavier industrial operations which fall within the B4-B7 use classes. This acts to reduce the overall level of risk posed by these operations. In contrast there are generally fewer requirements imposed on operators falling under the B1, B2 and B8 classes which could, and often do, lead to a lack of awareness (and hence increased risk) in relation to the hazards they encounter.

Information on Contaminated Land

There have been various publications which provide a good indication of the types of uses which can cause contamination and pollution problems.

Registers of Contaminated Land

Under Section 143 of the Environmental Protection Act (EPA) 1990, Local Authorities were required to compile registers of land within their areas which may be contaminated[15]. This section was not implemented and the Department of the Environment has recently indicated its intention that it should be repealed[16]. Nevertheless, the original register proposals provide a good indication of the types of uses which may cause contamination and pollution problems. The original list contained 16 groups of uses which have the potential to cause contamination of land. (The list, far from being defunct, is often used by financial institutions and lawyers during enquiries in property transactions (see [17] appendix A.03)).

There are certain groups of uses which appear on the original list which may also be carried out within the B1, B2 and B8 classes of the UCO. Table I examines the Section 143 Registers in the context of the UCO.

With regard to the above Table it is important to bear in mind two important points. First, the list is not exhaustive – there are other uses and activities which can cause pollution. And, second, it should also be remembered that what is not considered pollution or contamination today may be considered harmful in the future. For example, the Environmental Protection Act now regulates many land uses which had previously been considered to be non-polluting.

It should be apparent, therefore, that the "planning control system", and the UCO can only be used as a general guide to assess direct environmental risk. The most they can offer investors is to allow them to determine the percentage of their property portfolios which *could* be occupied by tenants which carry on activities which have the potential to pollute. It is possible to cross-reference the

Type of use	The use classes order	Schedule of contaminative uses
N/A	The use of land for agricultural purposes is not considered to be development	C1 agriculture
Special industrial group	These uses are not material to the property investment market; they include, for example, coal mining and extracting ores	C2 extractive industry
Special industrial group	These uses are not material to the property investment market; they include, for example, gasworks, coal carbonization plants and oil refineries	C3 energy industry
B4 and B2 (miscellaneous high street trades)	Although this group of potentially contaminative uses will principally be associated with special industrial group B4, the manufacturing and metal-finishing processes can be carried on within the B2 use	C4 production of metals
B2 and B5	The production or refining of non-metals and mineral fibres are uses which fall into the B2 use	C5 production of non-metals and their products
B2	The manufacture of glass and ceramics falls within the B2 use	C6 glass making and ceramics
B5	Although this group of potentially contaminative uses will principally be associated with special industrial group B5, some pesticide and fertilizer manufacturing could be carried on within the B2 use	C7 production and use of chemicals
B2 and B1 (miscellaneous high street trades)	The manufacture of metal goods including mechanical, engineering and industrial plant, can be carried on within the B1 use	C8 engineering and manufacturing processes
B2 and B1	The manufacture of pet foods or animal feedstuffs could be carried on within the B2 use	C9 food-processing industry
	The making of paper or paper products, including printing or de-inking are B2 uses. If the process was very localized, then it could also fall within use B1	C10 paper, pulp and printing industry
B2 (miscellaneous high street trades)	The chemical treatment and coating of timber products can be carried on within the B2 use	C11 timber and timber products industry
B2 and B1 (miscellaneous high street trades)	The tanning, dressing and other processes for preparing leather are typically B2 uses. The fulling, dyeing or finishing of fabrics or fibres, although normally falling within the B2 use, could also be carried on within B1 since many of the processes are relatively quiet. The manufacture of carpets and other textile floor coverings will again normally be associated with the B2 use.	C12 textile industry
B2	The processing of natural or synthetic rubber can be carried on within the B2 use	C13 textile industry
B2 and B8	The dismantling, repairing or maintenance of road transport or road haulage vehicles can be carried on within the B2 use. This is often an ancillary use of a B8 distribution warehouse unit	C14 infrastructure
Sui generis	These uses are not material to the property investment market; they include, for example, sewage works and landfill sites	C15 waste disposal
A1, B1 and B2 (miscellaneous high street trades)	Premises housing dry cleaning operations could fall into A1, B1 or B2. Laboratories for educational or research purposes can be carried on within sub-group (b) of the B1 class	C16 miscellaneous

Source: Annex C[15]

Table I.
Use Classes Order and Potentially Contaminative Uses

UCO with the abandoned Section 143 Registers to provide a very basic assessment of the level of direct environmental risk associated with each land use, by simply counting the number of times potentially contaminative uses appear in the various UCO groups (Figure 1). This will highlight those Use Classes in which potentially polluting activities can be carried on.

It should be noted that there are obvious limitations to this type of assessment. First, the B2 use is shown to be a high environmental risk group. However, it would be inaccurate to suggest that those property investment companies with a high allocation of this type of property necessarily carry this level of risk. Most of the B2 uses that cause environmental damage are usually very large units which are invariably owner-occupied, and do not, therefore, play a role in the property investment market. Similarly some of the B2 units existing within a portfolio will actually be occupied by tenants carrying on a B1 activity, which carries significantly lower levels of environmental risk. Therefore, while it is obviously the case that property investment companies with a large allocation to industrial property, particularly those with a significant B2 allocation, will carry higher levels of direct environmental risk, it is necessary to be aware of the tenants' activities to be able to carry out any meaningful analysis of this risk. This is outlined in the next section "Pollution Control" which outlines how investors can determine whether or not the tenant is undertaking potentially polluting activities.

British Standards Institution

Guidance notes have been published by the British Standards Institution on identifying land which may be contaminated[18]. These notes provide many examples of the types of uses which are particularly likely to cause land contamination problems. This list includes many uses associated with B4-B7-type uses, for example, asbestos and chemical works. However, there are also uses which may be found within the B1/B2 class and, therefore, relevant to landlords of these types of property, which obviously include institutional and property investment company landlords.

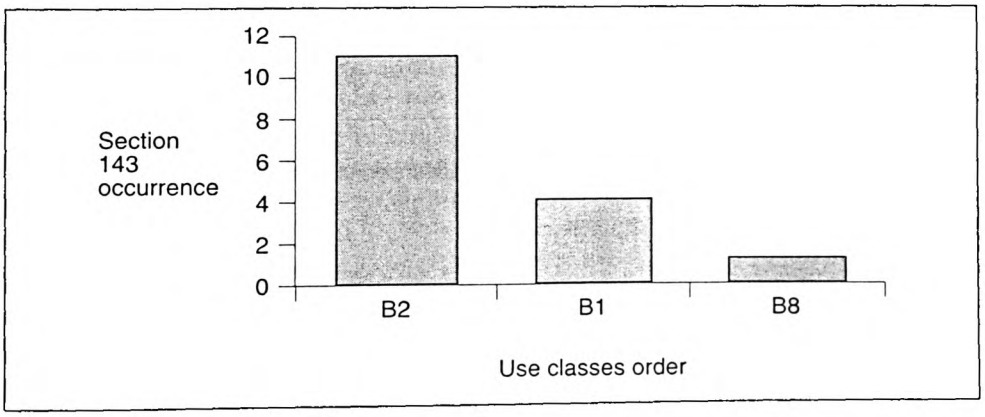

Figure 1.
Schedule of Contaminative Uses

One such use includes metal finishing, where the manufacturing processes includes the use of metals and solvents. This could be a B2 use, or a B1(c) use where small starter engineering units are in ownership.

Paper and Printing Works, and industries making or using wood preservatives, are also listed and these were highlighted in Table I.

Department of the Environment

The Interdepartmental Committee on the Redevelopment of Contaminated Land (ICRCL) Guidance Note sets out a systematic approach for the assessment of contaminated sites[19]. In a similar fashion to the BSI guidance note, the report highlights the type of uses which can cause contamination problems. The list includes, among the uses found within the B1/B2 category, paper and printing works and industries making or using wood preservatives. However, the guidance goes on to advise that the list is not exhaustive, and that "there may be many possible sources of contamination: leakages or spillages from pipes and tanks;...(and) storage and disposal of raw materials..."[19, p. 2]. Pollution of this nature can obviously be caused by a number of B1, B2 and B8 uses.

The Department of the Environment[20] has also recently published a number of documents in its Contaminated Land Research report series which provide guidance on site inspection and assessing the impact of contaminated land on groundwater.

National Rivers Authority

The National Rivers Authority (NRA) have a duty under the Water Resources Act 1991 to monitor and protect the quality of groundwater (Section 84) and to conserve its use for water resources (Section 19). The NRA have to be aware of the types of activity which can pollute this very important source of water and hinder their attempts to discharge their statutory duty. They have published a policy which outlines their approach to protecting groundwater[21] which indicates the type of activities likely to contaminate land and threaten groundwater supplies.

This makes clear that industrial manufacturing premises, where chemicals are widely used, form a major category of contaminated land. As does the manufacture and use of organic liquid chemicals, particularly chlorinated solvents and acid metallic solutions[21, p. 46]. Oil and petroleum storage has resulted in many instances of groundwater pollution, both from leakage and the accidental rupturing of tanks and pipe work[21, p. 47]. The use of chemicals and solvents, and the storage of oil and petroleum are activities that various B1, B2 and B8 tenants undertake at some stage.

The RPS Manual

The RPS Manual is aimed at financial institutions and has been written to help them assess the "...level of environmental risk that may be associated with property ownership and certain types of uses or occupation"[22]. The guide can

be used to gauge the overall level of risk which is associated with the current use of a site, the past uses of a site and the environmental sensitivity of a location. In providing this information, the guide lists potentially contaminating/polluting uses, and provides information on the kind of problems which may be associated with them. Table II indicates some potentially polluting uses and their associated land uses.

Case Law

Recent case law can also be a helpful guide in identifying the type of uses which have been responsible for pollution incidents. The cases that follow confirm that properties with a light manufacturing, research and development and storage and distribution planning permission, are capable of causing pollution incidents.

National Rivers Authority v. *Welsh Development Agency* [1993] EGCS 160

In this case a discharge of caustic soda, which originated from a leak on a tank kept by a tenant on an industrial estate, was released into a controlled water contrary to Sections 107 (1) (c) and 107 (6) of the Water Act 1989 and contrary to Section 4 (1) of the Salmon and Freshwater Fisheries Act 1975. The tenant responsible for the discharge manufactures architectural glazing systems for aluminium double glazing companies. It occupies a typical B2 unit on an industrial estate, a property type which forms part (albeit a relatively small part) of an institutional property portfolio. Property investment companies can, of course, hold a great deal of such property within their portfolios.

National Rivers Authority v. *Wright Engineering Company Ltd* (Divisional Court, 15 November 1993)

The case clearly shows that it is not only the tenant's main commercial activities which can lead to pollution problems, but also ancillary uses. The company used an oil-powered heating system to heat their premises. The tank which stored the heating oil was situated adjacent to a surface water drain which led

Description of land use	Planning use	Risk level
Food preparation and processing	B1, B2	Low
Mechanical engineering	B1, B2	Medium
Metal finishing/electroplating	B2	High
Paint and ink manufacturing	B2	Medium
Printing works	B2	Low
Textiles	B1, B2	Low
Timber treatment	B1,B2	High

Source:[22]

Table II. Examples of Land Uses and Their Associated Environmental Risk Level

to a nearby brook. There was a subsequent leakage of oil which caused the nearby brook to become polluted.

The use of oil as a heating fuel for buildings is perhaps more related to the age of a property than to its type. It could, therefore, be that older office and industrial properties carry this risk, as opposed to relatively new properties utilizing alternative sources of heating systems.

Schulmans Incorporated v. *National Rivers Authority* (Queens Bench Division) Unreported December 3, 1991

This case was very similar to *Wright Engineering* (see above) and arose from a spill of fuel oil from the appellant's premises which leaked into the River Ebbw via the drainage system. This again highlights that the storage of fuel can be a potential source of prosecution.

The storage of fuel for the purposes of heating premises will be relevant to various types of property, but could certainly include B1, B2 or B8 premises. The use of fuel and oil during a manufacturing process may also be relevant to B2 properties in particular, and it could be relevant to B8 properties where vehicles are re-fuelled, repaired/maintained and washed down before leaving a warehouse distribution centre.

Leighton Finishers Limited v. *National Rivers Authority* (Reported in the *Leighton Buzzard Observer*, 5 November 1991)

Leighton Finishers Ltd, (a metal-finishing company) pleaded guilty to the offence of allowing cyanide to leak into a nearby watercourse. It was caused when a drum of chemical waste was disturbed by vandals outside the premises. The company were prosecuted under section 4 of the Salmon and Freshwater Fisheries Act 1975. While such land uses will normally be associated with larger, predominantly owner occupied industrial units, it is certainly possible that a smaller B2 unit and possibly a B1 unit could entertain such activities.

Foliejon Establishment v. *Gain S.A.* (Ch.D., 7 July, 1993)

This case highlights the risks associated with research and development premises. The case was concerned with the accuracy of warranted replies to preliminary questions given by the vendor, and the detailed facts are not relevant to this article. One of the properties for sale had been used as a laboratory, carrying on highly specialized research in the development of high purity metal alloys. The environmental audit, which was commissioned by the purchaser, indicated that part of the laboratories, the drainage system and surrounding land, and an adjacent stream running through the estate were seriously contaminated – although the original estimates of contamination and clean-up were successfully challenged. The research and development activity – a use which is certainly permitted to be carried on within a B1 land use – had, therefore, caused contamination/pollution problems.

Pollution Control System

The most effective method of determining whether tenants actually do carry out potentially polluting processes on site is to consult the "pollution control system". Once this system of direct environmental risk assessment is utilized, it is necessary to be aware of the tenant's activities, rather than identifying which part of the UCO the property belongs to, or which broad category the tenant comes under in a publication such as the *RPS Manual*. The various components of the pollution control system exist as a series of registers, which are open to public inspection by virtue of the European Directive on freedom of access to information on the environment[23]. This method is rather more expensive since it requires research to be undertaken, although it is becoming more popular with landlords. This exercise is undertaken either by environmental auditors, who may also be asked to carry out an environmental investigation into the past uses of a site where it is subject to a purchase decision, or by the investor's management surveyors, where the property is already in ownership.

Public Registers

These registers will give an indication as to the potential for a tenant's activities to cause environmental damage. It is common to use the registers in conjunction with the guidance referred to above; for example, the proposed Section 143 register, which, although now abandoned, will still allow an investor to determine whether a use is potentially contaminating. [As discussed on letting a property, some landlords attach this list to the leasing documentation which explicitly prohibits any such use being carried on in the future.]

A recent Department of the Environment report[24] on developing and managing systems for holding information on land where contamination is known or suspected identifies the type of organization that might use such systems. These include not only regulatory authorities and local authority departments but also financial institutions, property developers, landowners, development agencies and surveyors.

Hazardous Substance Consents. The Planning (Hazardous Substances) Act 1990 demands that, where certain dangerous substances are kept below, on or over land in sufficient quantities, actual or deemed consent is required from the Hazardous Substances Authority. Section 28 of the Act requires a register of applications and consents to be kept.

Integrated Pollution Control and Local Authority Air Pollution Control. Under the Environmental Protection Act 1990, statutory registers must be kept in relation to Part A and Part B processes which fall under Part I of the Act. These registers provide a useful source of information concerning processes capable of releasing pollutants into the environmental media of air, land and water. The Part A processes are governed by Her Majesty's Inspectorate of Pollution (HMIP), and the Part B processes, which are concerned with releases into air only, are regulated by the relevant local authority.

Water Pollution Control Registers. Under the Water Resources Act 1991 the NRA can grant discharge consents into controlled waters. These consents are

required to be kept on public registers under section 190 of the same Act. While the register may be of limited use in determining whether land is at present contaminated, it should alert potential investors to the fact that there are processes being carried out on site which could result in a pollution incident.

Trade Effluent Discharge Registers. The relevant sewerage undertaker, by virtue of section 196 of the Water Industry Act 1991, must keep registers of consents to discharge trade effluent to public sewers. The information kept on these registers will allow investors to determine the nature of the current trade use of the premises. These pollution registers may also prove to be a useful source of information concerning conditions which have been applied to any authorizations, consents or licences. The conditions may be particularly stringent, or indicate that poor performance in the past has led to the revocation of consent; this type of information will be particularly interesting to potential property investors.

By consulting the pollution control system, particularly where alternative guidance is used also, investors can assess the environmental risk within their existing portfolios, or in any prospective investment, more accurately than the planning control system would allow on its own.

The Tenant as the Unit of Analysis

There is another unit of analysis which is crucial to any assessment of environmental risk. Determining investors' exposure to the industrial classes of the UCO, and consulting the pollution control registers which relate to their properties, will establish the amount of property held by an investor which *could* lead to environmental problems. Therefore, investors will be aware of the percentage of their portfolio which carries "direct" environmental risk; i.e. those properties which are occupied by tenants which have the potential to cause environmental damage resulting in action by statutory regulators, or third parties.

By owning such property, the landlord is potentially exposed to losses owing to the contamination of land, fines imposed by statutory regulators, statutory clean-up costs, or even civil claims for environmental damage. There is a limited amount of literature concerning the potential liabilities landlords may face, either at the end of a lease, or in fact during the term, but the consensus view at the moment is that landlords are potentially liable under certain circumstances[17], (see in general chapter two, and in particular pp. 79-81)[25] (an interesting analogy can be drawn from the book, which concentrates on banks' liability, to look at landlord liability) and [26]. There have also been articles which have featured in the *Estates Gazette*, CSW *The Property Week* and some environmental journals which highlight the potential liabilities for landlords who own properties occupied by tenants that do not comply with environmental legislation. (A Further Reading Section for these references can be found at the end of the reference page.)

However, as well as the possibility of landlords being prosecuted for pollution incidents, or being left with contaminated sites, they are also exposed to the risk

that environment-related loss suffered elsewhere in the tenant's organization could undermine the income security of their standing investments. In order to assess this "indirect" level of environmental risk, an understanding of the tenant's main business activities, carried on throughout the company, is required. Thus the tenant, as a corporate entity, including subsidiaries and parent companies, becomes the important unit of analysis.

The Hundred Group of Finance Directors[27] have outlined some of the key areas of environmental exposure which companies can be subject to. These include; fines and penalties for non-compliance with environmental legislation where offences now carry unlimited fines and custodial sentences; civil claims for environmental damage which can result in millions of pounds being paid out in compensation; liability associated with mergers, acquisition or sales; increased business and financing costs arising from increased waste disposal costs and inefficient use of energy or water; reduced asset values, for example, where contamination reduces the value of a company's land holdings or new environmental legislation reduces the operational life of industrial plant; public, customer and investor relation concerns which may involve institutional investors requiring guarantees of a company's environmental performance[27].

Tenant Risk

It is clear that these exposures could generate either short- or long-term adverse impacts on a company's business performance, and in extreme cases will threaten the long-term viability of a business.

One of the inherent risks in property investment is the financial failure, or the financial deterioration, of a tenant[28]. Financial failure will result in a break in the income stream and a commensurate reduction in value of the investment. Financial deterioration of the tenant's covenant will also have a negative impact on value, since potential purchasers will be less confident about the security of the future rental payments and this, provided that the information is available to the market, will be reflected in the price paid.

It is very important, therefore, that property investors are aware of the likelihood of financial failure of tenants, given the significant costs that can be incurred if this situation transpires. The problem that property investors face is that in many instances the environmental risks a tenant may encounter are not being made available to the markets. Although some companies have started to produce "environmental" reports with their end of year "financial" accounts, they remain a small minority. Furthermore, the lack of information which confronts property investors has been exacerbated by the financial markets' reluctance to "...focus fully on the value of environmental data in assessing companies' prospects"[29]. However, it is unlikely that this situation will continue for much longer.

The contention that a company's poor environmental performance could have an adverse impact on its financial standing has only recently been propounded, and it is by no means universally accepted that investors should consider it. However, there has been a sea change in investors' attitudes towards

environmental pressures, and how these can impact on company prospects, over the last two years. Reports such as the one produced by the Hundred Group of Finance Directors[27] have helped to concentrate minds in the investment community. This in turn has led to a research effort aimed at providing investors with a systematic way of measuring their exposure to environmental risk of this nature[30]; i.e. the risk that a company's poor environmental performance can undermine the financial standing of the company and, therefore, impact on investment returns.

System-based Environmental Risk Rating

System-based Environmental Risk Rating (SYBERR)[31]has been developed in response to the recognition by investors that it is becoming increasingly important to be able to assess environmental risks. It is already being used by a number of banks and insurance companies as a tool to assess potential environmental problems which could impact on their financial return[32].

The system's developers, Risk and Opportunity Intelligence (a credit-rating company) and Environmental Auditors, have combined credit and environmental risk ratings on over 330,000 UK businesses. Four environmental risk categories were ascribed to 940 business sectors, based on their potential to impact on the environment through raw materials, processes and products, and how likely environmental factors were to affect their performance. The environmental risk categories – based on subjective assessments of experienced environmental auditors – which included "minimal", "low', "greater than average" and "significant" were combined with five credit ratings. The resultant matrix identifies companies which have high environmental and high credit risks, i.e. those combinations which pose the highest level of risk to any potential investor.

The database will be continually updated, with greater environmental information becoming available; for example, the results of specific site inspections, pollution control data from agencies such as HMIP and the National Rivers Authority, and special industry studies will also be introduced. Crucially, the system is also intended to incorporate data concerning the implementation of Environmental Management Systems by companies.

Property Investment Performance and Environmental Risk

Attempting to assess environmental risks may be more important to certain property investors than others, although it should bring some common benefits to all those holding property as an investment:

- Properties, already existing within a portfolio, where uses are carried on which have the potential to cause pollution/contamination problems can be identified. An appropriate management strategy could then be pursued to minimize the risk of an environmental incident impacting on investment returns.

- The stock selection process will be enhanced by assessing a relatively new, but increasingly important, area of investment risk. This could be particularly important to smaller funds and property investment companies, where the relative portfolio performance will be heavily influenced by factors specific to individual properties as opposed to market-wide factors.

  The concept should not be completely irrelevant to the larger portfolios either. Their performance is heavily dependent on the performance of sectors, and their sector allocation will usually follow quite closely the IPD average – for industrial property this is around 15 per cent. The IPD industrial portfolio will carry direct and indirect environmental risks, and a consideration of these risks in the stock selection process may be one way of outperforming the benchmark.

- It should be remembered that the investment characteristics of property investors will, to a large degree, influence their potential exposure to environmental risks – particularly direct environmental risks. For example, institutional property investors have generally been withdrawing from the industrial sector over the last 15 years, and the restructuring of the UK economy over the long term, away from industrial activity towards service activity, has obviously contributed to this situation[33]. The fact that industrial property is relatively management-intensive, and depreciates quite quickly[34] also explains why institutional investors have reduced their allocation to this type of property. An increasing percentage of institutional industrial property is made up from B8 properties, which, of the industrial properties, are least likely to carry direct environmental risks.

The resultant asset allocation of a typical institutional property portfolio, which has been shaped by macroeconomic developments over the last 20 years, has undoubtedly reduced their exposure to potentially polluting properties. Consequently, the property portfolio of a fund will tend to be characterized by low levels of direct environmental risks. This situation could be contrasted with a property investment company which may have 100 per cent of its property portfolio invested in industrial property. Moreover, many of these premises may fall into the B2 class which can contain environmentally high risk properties.

Conclusion

The level of environmental risk which a property investment portfolio will be subject to is a function of various factors. This article has concentrated on a specific area of environmental risk; i.e. that which is associated with the current use of an "industrial-type" property (direct environmental risk) and that which is associated with the tenant's wider commercial activities (indirect environmental risk). Assessing these risks involves a number of different stages utilizing new sources of information which the property investment market is unfamiliar with.

The other financial markets are developing models to assess environmental risk, presumably because they envisage the issues impacting on their investment returns. Property investors, and those offering property investment advice, likewise will have to utilize these models and develop their own in order to assess such risk.

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Assessing and Managing the Environmental Risks of Property Ownership

Neil Turner, Luke Bennett, Gwyn Prescott and Stuart Gronow

Existing Risk

The first, and probably most important, question managers will need to ask is whether the property for which they are responsible is contaminated. Only a full-scale, on-site, environmental audit costing many thousands of pounds would establish this with absolute certainty. However, there are some basic steps the manager can take to determine the likelihood of contamination existing on land within his portfolio.

A phase 1 review (otherwise known as a desk study) can give a good indication of whether or not the site has previously been put to potentially contaminative uses. It will attempt to have the history of a site to determine whether uses or substances, that may pose potential environmental problems, have been carried out on site. Along with historical information, gathered from old D.S. maps and geological maps, information from regulatory authorities can be useful in determining whether previous tenants, or indeed the current tenant, have ever been investigated or prosecuted by pollution authorities. The Environmental Information Regulations 1992 affirm the principle of the freedom of access to environmental information as of right although, unfortunately, the proposed establishment of Local Authority Registers of land subject to contamination has been abandoned[1]. The selection and appointment of appropriately qualified environmental consultants should not be overlooked at this stage of the risk assessment process. A phase 1 review can be carried out by reputable consultants for as little as £500, thus providing information as to the likely presence of contamination at relatively low cost.

The phase 1 review could reassure the manager that the risk of contamination existing is negligible. The results could also be used to furnish any potential purchasers with documentary evidence illustrating that attempts have been made to assess the environmental risks within the property. This kind of environmental information will become increasingly important to property managers. However, there is a risk that the result of the phase 1 review may *not* be reassuring and the manager would then hold an adverse survey which he might be called upon to disclose prior to any future disposal of the property.

Future Risk

Historically, so long as the tenant's activities were carried out in accordance with the user clause, most landlords showed very little interest in the activities of the occupying tenant. This is already beginning to change. A recent survey showed that 80 per cent of landlords interviewed had undertaken initiatives to assure that " ... their own tenants use and occupy their property in such a way as to avoid problems with contamination which could be inherited by the landlord"[2].

It seems it is becoming increasingly recognized that a tenant's activities, and the manner in which these activities are carried out, are very important to any property manager's attempt to assess the environmental risks inherent in his portfolio. Why though, is it important to assess this risk, and why are so many landlords undertaking such initiatives?

Property Management, Vol. 12 No. 2, 1994, pp. 4-15

The legislation is at 1 May 1994.

Environmental Law

In response to ever increasing public concern about the state of the environment, the development of environmental law in the EC and the UK has been very rapid. This has resulted in both statute and common law which is attempting to deliver the widely accepted principle that the polluter should pay for the environmental damage he causes. The problem facing the property manager, in his attempt to protect and enhance the value of the portfolio actively, is that poor environmental standards on the part of the tenant could lead to liability being passed on to the landlord. There is also the possibility of "losing" the tenant during the lease term because of his poor environmental management practices. Environmental authorizations, such as those required under Local Authority Air Pollution Control, are now a prerequisite for some businesses to continue trading. If the tenant loses his authorization it is very unlikely that his business will stay in occupation paying rent to the landlord.

A close examination of the relevant environmental law demonstrates that a landlord *may*, in certain circumstances, be responsible for a tenant's clean-up liabilities. "The polluter pays" principle, particularly in respect of damage which was foreseeable, is widely accepted by most interested parties to be a reasonable approach, but there is still some ambiguity as to who exactly is the polluter, especially where pollution has built up gradually. Environmental economics, and in particular the writings of Pearce *et al.*[3], are becoming widely accepted. They suggest what would be needed to arrest the unsustainable degradation of the planet: a cocktail of tougher environmental law and the internalization of environmental costs. In brief, someone will have to pay for environmental damage, and the growth of international, EC, UK statute and UK common law (and its lack of clarity) leaves owners of property open to claims under civil and administrative law for the clean up of environmental damage and even criminal liability under certain circumstances. (See Appendix for relevant environmental legislation.)

Environmental law is becoming increasingly pro-active as it strives to reflect the EC's "Precautionary Principle": that environmental damage should be prevented at source. Statutory duties are already imposed on certain businesses to ensure that environmental pollution does not occur, as opposed to only making provision for allocating blame, and the cost, of environmental incidents as and when they arise. The property manager needs to be aware of such developments. It may be that in the future wilful disregard of a tenant's activities, as has happened in the past, will leave the landlord with no sympathy from the courts searching for a polluter who has not taken the necessary precautions. The Environmental Law Matrix appended to this article illustrates the complexity of, and the uncertainty which has been caused by, the rapid growth of environmental law.

What Is Contaminated Land?

It should also be noted that there is no legal definition of "contamination". Even the widely used definition of "contaminated land", being "Land that contains substances when present in sufficient quantities of concentrations are likely to cause harm, directly or indirectly to man or the environment"[4] is somewhat vague. Calls for a more precise definition have been rejected by the Government on the grounds that it is a concept incapable of more precise definition. Whether or not land is actually contaminated will depend, to some extent, on the existing or proposed use of the land, since a "...particular concentration of a contaminant may be safe for one...use, but not for another"[5]. There is also no comprehensive list of contaminative substances but, more importantly, even if it existed, it is very unlikely that this would remain static. What is not considered to be contamination today may be considered to be contamination in the future and, therefore, punishable in economic terms. It is still unclear to what extent future developments in environmental law will introduce retrospective liability for contaminating actions which, at the time they were carried out, were lawful.

The Standard Lease and Contamination

To summarize so far:

- there are concerns over what exactly represents a contaminated piece of land, particularly in the future;
- environmental law is developing rapidly in its attempt to impose strict liability for environmental damage under the auspices of the polluter pays principle; and
- there are conflicting views about who exactly is the polluter due to the ambiguous and relatively untested nature of certain environmental laws.

In addition, the property manager should also be aware that there is considerable doubt as to whether the standard lease offers sufficient protection for the landlord in respect of liability for contamination.

The permitted user provisions found within the standard lease usually relate to general use, such as any use within Class B2. Such provisions do not normally control actual site operations but

these too have the potential to cause pollution. Since the Use Classes Order was designed around traditional planning considerations and not on the basis of uses which may cause environmental damage, it cannot be used as a reliable risk identification system. An extreme example would be a property used for "Dry Cleaning" purposes. Such a property would have appeared on the Section 143 Registers while at the same time existing within the relatively innocuous Class A1 of the UCO. The standard repairing covenant normally relates to the repair of the property and not necessarily to the land. General indemnity provisions are also unlikely to offer absolute protection for the landlord. While landlords may argue that they are entitled to an indemnity from a tenant against losses they suffer from contamination, any modification of the normal lease provisions may have a detrimental impact on the rent payable under the lease. It is also important to remember that where criminal proceedings are brought against a landlord, it may not, as a matter of public policy, be possible for him to enforce any contractual right of indemnity against his tenant in order to reimburse the cost of any fine imposed on him.

Measuring the Environmental Risk of Property Management

Environmental Risk Rating

There is plenty of evidence to suggest that financial markets are concerned with environmental risk. For example, banks are introducing screening processes before signing loan agreements, and the insurance market has all but completely withdrawn from the public liability insurance market for gradual pollution. However, widespread use of environmental considerations in investment decisions remains hampered by the scarcity of hard facts about risk.

Environmental risk rating (ERR) is an attempt to redress this issue and the proposals put forward by the Centre for the Study of Financial Innovation[6] are sufficiently developed to be considered by those involved in managing property. ERR would create an environmental yardstick against which tenants could be rated, enabling existing property managers and potential purchasers to form a judgement about their environmental liabilities. It would be based on two questions:

(1) How large are the company's potential environment-related liabilities?

(2) How well-placed is it managerially financially to deal with them?"

Publicly available information would be gathered including, for example, prosecution and authorization records kept by regulatory authorities, which would then be combined with information on the type of activity which the tenant carries out on site.

An assessment of the managerial controls in place to reduce the likelihood of pollution risks materializing is obviously important to this process. Finally, the strength of the covenant would need to be assessed to determine how well placed the company is to absorb environment-related loss, since it is unlikely that a tenant can manage away, or obtain insurance against, all environmental risk. It is important, therefore, to consider the tenant's financial standing to determine how this "residual risk" is to be dealt with.

As has been argued previously[7,8] a tenant offering a combination of good environmental management practices and a strong covenant provides the landlord with an inherently less risky investment from an environmental perspective. The vagaries of the development of environmental law, and the ineffective nature of the standard lease, mean that landlords need to assess their tenants' activities, management practices and financial ability to deal with these problems.

It is suggested, therefore, that the property market would benefit from a system which would allow potential purchasers to assess future environmental risk and permit them to consider the tenant's managerial and financial arrangements which are in place to deal with any incidents that may occur. The property manager would be able to assess the environmental risk inherent in his portfolio and make acquisition and disposal decisions with environmental information which hitherto has not been available. Property managers should be attempting to reduce their potential exposure to environmental risk in a systematic way. Those who do not "may be setting themselves up for low returns"[9]. This risk assessment process is the first step towards reducing environmental risk.

The Environmental Performance of the Occupying Tenant

The property manager can assess the environmental performance of occupying tenants by considering their environmental policies. The development in the UK of the world's first environmental management system standard (BS 7750)[10] is a tremendous aid in this process. An environmental management system (EMS) is a management tool which allows an organization to establish procedures to set environmental

objectives and it also provides the means by which to achieve compliance with these objectives. It does not set environmental performance criteria, but provides a model on which organizations can base their policies and objectives, which will, in turn, continuously improve their environmental standing. BS 7750 is made up of 11 stages (Figure 1) which demand the implementing organization to assess its current impact on the environment and set quantifiable targets to reduce these impacts. There is an audit cycle to ensure that these objectives are met and reviews take place at appropriate intervals to establish the continuing applicability and effectiveness of the EMS in view of changing market conditions or law. The EC's Eco-Management and Audit Scheme [11] also incorporates the EMS concept to minimize environmental impact. This scheme will be accredited on a site-by-site basis, whereas the British Standard System will be awarded on a company wide basis. The property manager could find the EC scheme very useful in reducing the environmental risk to be found at individual industrial sites.

The main virtue of the EMS is that it will reduce the likelihood of environmental incidents occurring in the *future*. However, the "environmental effects evaluation and register" will attempt to establish the tenant's position with regard to the environment including an examination of his environmental effects. "The procedures shall include, where appropriate, consideration of: ... (d) *contamination of land* ... The procedures shall include effects arising, or likely to arise, as consequences of : ... (4) *past activities, current activities and planned activities*" (emphasis added)[12].

It could therefore be expected that industrial tenants, who have been in occupation of premises for some time, would consider the issue of contaminated land as part of BS 7750 accreditation. This information would be extremely useful both to existing landlords and potential purchasers wishing to assess environmental risk.

The EMS will reduce the environmental impact of the occupying tenant. It is also designed to manage the remaining environmental effects to a recognized standard, and this will reduce the likelihood of environmental incidents occurring which have the potential to increase the management costs of the landlord. Thus, the EMS concept needs to be considered as an integral part of an environmental risk assessment process being conducted by property managers and investors alike.

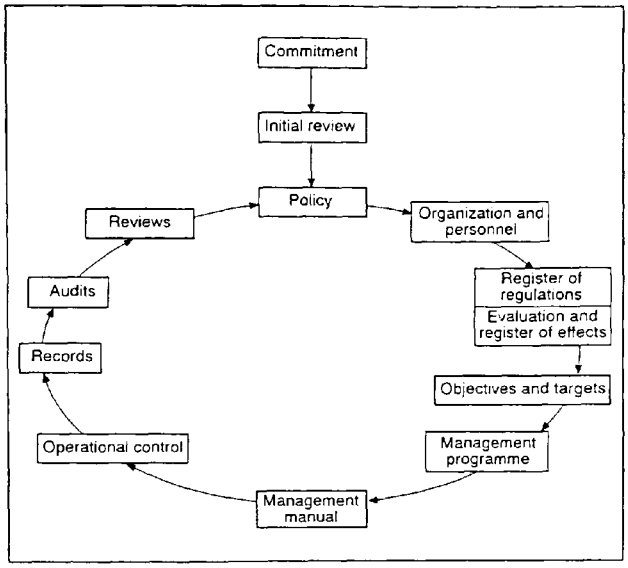

Figure 1.
Schematic Diagram of the Stages in the Implementation of an Environmental Management System

Conclusion

Potential Purchasers

Increasingly, purchasers will require information to enable them to assess the potential environmental risks they face. This rational approach to investment will involve an appreciation of the legal regime which will govern the investment throughout the holding period. The information contained within an EMS will go a long way to satisfying these concerns. An understanding of the financial ability of a tenant, incorporated into an ERR, is also paramount. Such facts should be considered when building up a property portfolio which may contain properties occupied by tenants who have the potential to pollute.

Prevention Is Better than Cure

This old maxim has never been more true. Even if liability for environmental damage was certain as to who exactly is the polluter, the occurrence of any environmental incident is not an ideal situation for the landlord. He would need to be assured that his reversionary interest had been protected and that the contamination had been cleaned up. This would involve an environmental audit of some description in order to verify the adequacy of the clean up works and thus would inevitably increase management costs.

The possible stigmatization of the landlord's proprietary interest should also not be overlooked. If the tenant has caused pollution once, will he do it again? Potential investors will be aware of past environmental incidents (if they have undertaken their searches properly) and may decide against

purchase on this basis. Possible write-down of the landlord's interest could still, therefore, occur.

Enhanced Portfolio

The EMS has as its fundamental aim the reduction of environmental risks and impacts which are pertinent to the implementing organization. This will reduce the risk of liability being enforced against a tenant, offering a landlord a more secure income while simultaneously reducing the landlord's potential exposure to environmental liability.

Just as the site environmental audit will identify environmental hazards and reduce financial uncertainties, the EMS will ensure a certain environmental quality of the tenant. Therefore, just as uncontaminated land will attract a higher price than contaminated land, the approved environmental quality of a tenant will enhance its value since the internalization of environmental costs will change the way companies are valued in the marketplace.

Property management and investment will increasingly require environmental information in order to satisfy landlords and potential investors that the environmental risk has been assessed and is being managed. The EMS has a major role to play in this process since it can supply much of the environmental information, improve the environmental performance of the tenant, reduce the potential for the landlord to face environmental liability and, possibly, even enhance the value of property. With an EMS, accompanied by a well-structured lease, with indemnities to protect the landlord, and an assessment of the tenant's financial ability to deal with environmental incidents, the property manager can systematically reduce the environmental risk which is inherent in his portfolio.

The recent House of Lords' decision in the Cambridge Water Company case[13], which at first sight may lead a reader to believe that companies are less likely to be liable for environmental clean up, has a sting in its tail. The issue is now whether or not the type and extent of pollution caused was foreseeable, by the alleged polluter, at the time the alleged polluting activities occurred. It is important, therefore, that tenants adopt what is current best practice so that they can argue in due course, if pollution does occur, that it was unforeseeable and that civil liability should not arise.

Evidently, "Insurers and bankers will ... have to take a much closer interest in their customers' Environmental Management Systems before they underwrite pollution liability risks or lend money" [14]. The property manager and investor are advised to take the same approach when considering adding to their portfolios, or indeed disposing of property assets.

□

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Appendix 1.

Statutory provision	Offence	Who is liable?	Penalty	Prospect for landlord liability
A1. Principal pollution offences – air pollution				
Section 6(1) Environmental Protection Act 1990	Carrying on Prescribed Process after the date set for implementation of the Integrated Pollution Control regimes without an authorization or in breach of any conditions imposed upon an authorization Prescribed Processes are set out in the Environmental Protection (Prescribed Processes and Substances) Regulations 1991 (as amended)	The person "carrying on" the Prescribed Process	Summary conviction: fine not exceeding £20,000.00 Conviction on indictment: a fine and/or imprisonment not exceeding two years	No definition of "carrying on" is provided by the Act although it is likely to be construed by a court to require active participation in, and a degree of control over, the Prescribed Process
Section 1(1) Clean Air Act 1993	Emission of dark smoke from a chimney or any building	The occupier of the building	Fine not exceeding £5,000.00 (£1,000.00 for domestic premises)	No definition of "occupier" is provided by the Act but a Landlord not in possession is unlikely to be regarded as liable as the occupier
Section 1(2) Clean Air Act 1993	Emission of dark smoke from a chimney not covered under Section 1(1) which serves the furnace of any fixed boiler or industrial plant	The person having possession of the boiler or plant	Fine not exceeding £5,000.00	No definition of "occupier" is provided in the Act. A court is likely to construe "possession" as requiring actual control over the boiler or plant rather than just legal title to it
Section 2(1) Clean Air Act 1993	Emission of dark smoke from industrial or trade premises (otherwise than from a chimney)	The occupier of the premises and any person who causes the emission	Fine not exceeding £5,000.00	No definition of "occupier" is provided by the Act but a landlord not in possession is unlikely to be regarded as liable as the "occupier". However, an additional limb is that any other person who has caused or permitted the emission may also be liable – therefore a landlord could be held liable for unwittingly sanctioning or assisting the offence, particularly as "causes" and "permits" are not qualified by "knowingly" (see below)
A2. Principal pollution offences – waste management				
Section 33(1)(a) Environmental Protection Act 1990	Depositing, or knowingly causing or knowingly permitting Controlled Waste to be deposited on land otherwise than in accordance with a Waste Management Licence	Any person who performs, knowingly causes or knowingly permits the offending action	*Common penalty provisions:* Summary conviction: fine not exceeding £20,000.00 and/or up to two years imprisonment Conviction on indictment: fine and/or up to two years imprisonment (N.B. imprisonment for up to five years is possible if the offence involves Special Waste).	A landlord not in possession may be liable if his actions cause the unlawful deposit (i.e. if he directs the tenant to perform the action) or if he is aware of the proposed action and fails to exercise a power (perhaps a leasehold covenant) to prevent it. It will be noted that "Cause" is now qualified by the requirement that the person must knowingly cause the action. The possibility for liability for failing to act ("knowingly permitting") remains
Section 33(1)(b) Environmental Protection Act 1990	Treating, keeping or disposingof Controlled Waste (orknowingly causing orknowingly permitting suchactions) on any land or bymeans of any mobile plant otherwise than in accordance with a Waste Management Licence	Any person who performs, knowingly causes or knowingly permits the offending action		

(Continued)

Statutory provision	Offence	Who is liable?	Penalty	Prospect for landlord liability
Section 33(1)(c) Environmental Protection Act 1990	Treating, keeping or disposing of Controlled Waste in a manner likely to cause pollution of the environment or harm to human health	Any person who performs the offending action (regardless of whether the action has been carried out in accordance with a Waste Management Licence)		N.B. Scope for peripheral liability for persons who may have contributed to the action by causing or permitting it
Section 34 Environmental Protection Act 1990	Failing to take measures reasonable in the circumstances when dealing with Controlled Waste ("the duty of care") to: a) Prevent another person committing a Section 33(1) offence; or b) Prevent the escape of the waste from their control; or c) Ensure that waste is only transferred to an authorized person and that an appropriate written description and Transfer Note is prepared and exchanged (N.B. a code of practice has been issued providing guidance on how the duty should be discharged)	The duty of care applies to importers, producers, carriers, keepers, treaters, brokers, disposers and other controllers of waste	Fine not exceeding £5,000.00	A landlord who provides for or controls a Tenant's waste collection/disposal (perhaps as part of a scheme covering an industrial estate) must ensure that it complies with the Duty of Care in doing so Landlords also risk criminal liability under the waste carrier's regulation requirement imposed by the Control of Pollution (Amendment) Act 1989 if they transport their tenant's waste
A3. Principal pollution offences – water pollution				
Section 85(1) Water Resources Act, 1991	Causing or knowingly permitting any poisonous, noxious or polluting matters or any solid waste matters to enter any Controlled Waters otherwise than in accordance with a Discharge Consent	Any person who performs, causes or knowingly permits the offending action	Summary conviction: fine not exceeding £20,000.00 and/or imprisonment for a term not exceeding three months Conviction on indictment: fine and/or imprisonment not exceeding two years	In the recent case of *National Rivers Authority* v. *The Welsh Development Agency* (1992) *The Times* 29 December it was held that a Landlord could not be held liable for "causing" a polluting discharge which had emanated from a Tenants premises but passed through a communal sewer constructed and maintained by the Landlord before discharging into Controlled Waters. A line of cases have stressed that to "cause" requires a positive act by the defendant It is likely that future prosecutions against Landlords will concentrate upon "knowingly permitting", such that a Landlord will be liable if the prosecution can show that he was aware of the polluting action (or should have been) and that his liability is therefore established by his subsequent failure to take action to stop the polluting act. As many "institutional" leases will contain a covenant prohibiting polluting discharges a court may insist that such

(Continued)

Statutory provision	Offence	Who is liable?	Penalty	Prospect for landlord liability
				Landlords have a duty to enforce such covenants where they become aware of appropriate circumstances; courts may also develop the view that such covenants should be *actively* policed and therefore impose liability on the basis of imputed knowledge
Section 111 Water Industry Act 1991	Throwing, emptying or suffering or permitting to be thrown or emptied or pass into any public sewer (or connecting drain or sewer): a) Matter likely to injure the sewer or drain or interfere with its flow or the disposal of its contents: or b) Any chemical refuse or waste steam or heated liquid which alone or in combination with the other contents of the sewer may cause a nuisance or be actually or potentially injurous to health: or c) Any petroleum spirit or carbide of calcium otherwise (for a) and b)) than in accordance with a Trade Effluent Discharge Consent	Any person who performs or suffers or permits the offending action	Summary conviction: fine not exceeding £5,000.00 (plus a daily default fine not exceeding £50.00) Conviction on indictment: fine and/or imprisonment not exceeding 2 years	Similar comments may apply in relation to liability for "suffers" or "permits" as apply for Landlords under Section 85 of the Water Resources Act 1991. However, liability for a Landlord may be more likely as there is no requirement that the prosecution should show that the offence was "knowingly" permitted
Section 118(5) Water Industry Act 1991	The discharge of trade effluent from any trade premises without a Trade Effluent Discharge Consent	The occupier of the premises from which the unauthorized discharge is made	Summary conviction: fine not exceeding £5,000.00 Conviction on indictment: fine	The prospects for Landlord liability under this section appears limited where the Landlord is not in occupation of the relevant premises

Statutory provisions	What the power provides	Who can be required to carry out works?	Penalty for non-compliance	What action can the authority take?	Costs of clean-up action may be recovered from	Prospects for landlord liability
B1. Clean-up powers – waste deposits						
Section 59 Environmental Protection Act 1990	Where controlled waste has been deposited on land in contravention of Section 33(1) of the Act the WRA may serve a Notice requiring removal of the Waste (and/or other steps) within a minimum of 21 days	The occupier of the affected land	Fine not exceeding £5,000.00 and a daily default fine of £500.00	The WRA may take action itself to remove the waste or take other steps to deal with its effects: a) in order to remove or prevent pollution of land, water or air or or harm to human health and urgentsteps are necessary; or b) where there is no occupier, or c) the occupier neither made nor knowingly permitted the deposit of the waste	Reasonably incurred costs may be recovered from the occupier (unless he can prove that he neither made nor caused nor knowingly permitted the deposit) and/or from any person who deposited or caused or knowingly permitted the deposit of waste on the land	The Act does not define "occupier" but it is unlikely to include a Landlord not in possession A landlord might be liable for some or all of the clean up costs if his actions contributed to the offence or if he failed to exercise a power which it had to prevent an unlawful deposit or demand its removal
B2. Clean-up powers – pre-emptive actions						
Section 61 Environmental Protection Act 1990*	Duty imposed on WRAs to monitor land in their areas in order to detect land likely to be affected by noxious gases or noxious liquids caused by deposits of controlled waste			Where land is found to be affected to such an extent as to make pollution of the environment or harm to human health likely the WRA is under a duty to take reasonable steps to avoid the risk of pollution or harm	Reasonably incurred costs may be recovered from the person who is the current owner of the land – subject to a proviso that the WRA must have regard to any hardship which that recovery of costs might have	*N.B. This Section has not yet been brought into force The section is aimed at dealing with problems arising from old landfill sites but may be capable of more general application The Act does not define "owners" for this provision and therefore cost recovery proceedings could be commenced against the landlord as owner of the freehold reversion As the WRA is under a duty to carry out remedial works to any land affected by waste deposits landowners might have to pay for clean up costs for works carried on upon their land because of the effect of waste deposits on neighbouring land This provision appears to impose retrospective liability in terms of clean up costs in relation to damage caused by waste deposits as it applies to damage arising from deposits regardless of when they were madeand whether or not they were madein accordance with the legislation in force at that time

(Continued)

Statutory provisions	What the power provides	Who can be required to carry out works?	Penalty for non-compliance	What action can the authority take?	Costs of clean-up action may be recovered from	Prospects for landlord liability
Section 161 Water Resources Act 1991	Where it believes that poisonous, noxious or polluting matter or any solid waste matter is likely to enter or to be, or to have been present in controlled waters the National Rivers Authority is entitled to carry out preventative and/or remedial works				The NRA may recover expenses reasonably incurred from any person who in its opinion caused or knowingly permitted the matter in question to be present in or threateningly near, controlled waters	The comments made above relating to Section 85 of the Act are relevant here: in certain circumstances the NRA might well be able to argue successfully that culpable inaction by the landlord contributed to the situation
B3. Clean-up powers – statutory nuisances						
Section 79-81B Environmental Protection Act 1990	Duty imposed upon Local Authorities to inspect their areas in order to detect any statutory nuisances and also to respond to public complaints A wide variety of matters are potentially declared to be statutory nuisances by Section 79(1) by virtue of their nature as nuisances or matters prejudicial to health Included within the list are: smoke; premises; fumes and gases; noise; animals; deposits; dust; steam or smells An Abatement Notice may be served prohibiting the statutory nuisance or requiring it to be abated within a given time period	The Notice should be served on the person responsible for the nuisance but if that person cannot be found the notice should be served on the owner or the occupier (it is the owner who should be served if the nuisance is attributable to the structural character of a premises).	Fine not exceeding £5,000.00 (with a daily default fine of £500.00) unless the offence is committed in relation to industrial, trade or business premises in which case the maximum fine is £20,000.00	Where an abatement notice has not been complied with the Local Authority may (whether or not itprosecutes for non-compliancewith the requirements of thenotice) requirements of thethe works required by the Notice to a bate the nuisance	Reasonably incurred costs may be recovered from the person by whose act or default the nuisance was caused and (if that person was the owner of the premises when the nuisance was created) from the current owner Sections 81A and 81B have been added by the Noise and Statutory Nuisances Act 1993 with effect from 5 January 1994. Section 81A empowers Local Authorities to change interest upon clean-up costs and secure the repayment of such costs by the creation of a statutory change upon the premises.	Section 81A has provided a definition of "owner" which equates ownership with the receipt of (or right to receive) the rack rent for the premises. This, therefore, appears to place onerous burdens upon landlords with little regard to the nature of the lease contracted between the parties. Section 81B provides a power whereby any Local Authority holding a Section 81A statutory change may require a tenant to divert part or all of its rental payments to the Local Authority in order to discharge the owner's indebtedness. It remains to be seen how Local Authorities will use this power.

Appendix 3.

Action	Basis of action	Likelihood of action	Prospects for landlord liability
C1. Civil liability			
Breach of contract	A lease is a contract struck between a Landlord and a Tenant	Either party can sue the other for damages (compensation) if the other fails to comply with the covenants granted	A Landlord may therefore have a contractual remedy against his tenant for any breach of environmental covenants or for environmental dilapidations (i.e. contamination) which may be caused to the premises by the Tenant's actions. The Landlord may also have the benefit of a comprehensive indemnity against any costs incurred by the landlord in relation to the premises because of the Tenant's conduct However, by virtue of the contract, the Landlord might also find that liability could attach to him (e.g. if the Landlord fails to meet its obligations to maintain services and common parts – this could lead to a risk of legionnaire's disease, for example, if air conditioning equipment is not properly maintained)
Negligence	Failure of a person to act towards another person, to whom he owes a duty of care, with a sufficient degree of care such that he should be liable for any damage caused by that breach of duty	Liability is dependent on fault being established. While negligence is a commonly used Tort action, it is unlikely to prove more successful than strict liability mechanisms in complex pollution liability cases	Plaintiff would have to prove: a) That the Landlord owned him a duty of care: b) That the Landlord had failed to exercise the requisite standard of care; c) That because of the Landlord's failure to discharge his standard of care the plaintiff had suffered damage A plaintiff would therefore have to prove that a landlord is, in effect, responsible for the environmental activities of his Tenants. This could be difficult to prove
The Rule in *Rylands* v. *Fletcher*	"...any person who, for his own purposes, brings onto his land and collects and keeps there anything likely to do it mischief if it escapes must keep it at his own peril, and if he does not do so is prima facie answerable for all the damage which is the natural consequence of its escape". *Rylands* v. *Fletcher* (1868) LR 330 per Blackman, J	This doctrine establishes strict (no-fault) liability for hazardous land use – the recent House of Lords judgement in *Cambridge Water Company* v. *Eastern Counties Leather* (1993) *The Times* 10 December has suggested that in the future the "non-natural use" qualification may be relaxed, potentially bringing a wide range of industrial land use within the ambit of the doctrine. However, the case has also made it clear that foreseeability of the typeand extent of damage likely to becaused also has to be shown	There are authorities which suggest that an owner who authorizes a non-natural accumulation upon his land may, in certain circumstances, be liable even though he is not in occupation at the time of the escape: *Rainham Chemical Works* v. *Belvedere Fish Guano Co* (1921) AC 465 and *St Anne's Brewery Co* v. *Roberts* (1928) 140 LT1. Therefore a Landlord may potentially be liable for sanctioning a tenant's hazardous use of land Also on forfeiture or at the end of the lease term a Landlord may "inherit" a state of affairs on the land such as to be responsible for "keeping" the mischief on the land and therefore strictly liable for its escape
Nuisance	The unreasonable interference with a person's use or enjoyment of land or some right over, or in connection with it	This doctrine establishes strict liability for the interference with a plaintiff's property rights. The *Cambridge Water Company Case* has made it clear that liability will only arise in respect of damage which is foreseeable (in terms of both type and extent)	A landlord may be liable for the tenant's interference with a neighbour's enjoyment of his property if the landlord has sanctioned the tenant's interference in some way (or if its existence was known to the landlord before the tenancy was granted). However, basing an action on the Landlord's failure to exercise control over his tenant (e.g. under the lease) may prove difficult to progress On forfeiture or at the end of the lease term a Landlord may "inherit" a nuisance and could be said to adopt continuing responsibility for it through failure to remediate it: *Sedleigh-Denfield* v. *O'Callaghan* (1940) AC 880

(Continued)

Action	Basis of action	Likelihood of action	Prospects for landlord liability
C2. Civil liability statute law			
Breach of Statutory Duty	Breach of certain duties imposed by statute may give rise to a right of civil action for an aggrieved party in addition to giving rise to criminal liability (e.g. Section 73 of the Environmental Protection Act 1990 provides that a plaintiff may plead breach of any of the duties imposed by Section 33(1) of the Act as the basis of a claim for compensation)	Pleading breach of statutory duty means that fault does not have to be proved and harm to land does not have to be shown (as would be the case with a claim in Nuisance). It may therefore prove to be a course of action adopted in order to address personal injuries caused by environmental hazards	In order to plead a breach of statutory duty against a landlord, criminal liability under the statute itself would have to be established. Therefore see the comments above related to Landlord liability for breaches of Section 33 of the Act
Policy developments	The European Community and the Council of Europe have both introduced proposals to establish a statutory basis for civil liability for environmental damage which, if implemented into UK law could have a significant impact:		
	The Draft Directive on Civil Liability for Damage Caused by Waste (COM(91) 219) The Producer of waste (or person subsequently holding it) would be strictly liable for environmental damage caused by Waste	The EC has turned its attention to consider the implications of civil liability for Environmental damage in a wider sense in its Green Paper and the draft Directive may never be implemented	Liability would ultimately rest with the person responsible for the waste disposal site. Therefore freeholders of waste disposal sites should take note
	The Council of Europe Liability for damage Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment (1993) Strict liability would attach to the operators of dangerous activities	The UK is unlikely to ratify this convention	None of these proposals would be retrospective (i.e. cover liability for environmental damage attributable to activities carried out before the proposals were implemented)
	European Commission Green Paper on Remedying Environmental Damage (COM(93)47) In this discussion paper the EC has proposed the introduction of strict liability for certain types of Environmental damage (where the polluter *can* be identified) to be supported by "Joint Compensation Schemes" funded by levies on certain businesses in certain industrial sectors (to cover the cost of remediating environmental damage where no polluter can be identified)	The EC has yet to report on the results of its consultation process	The impact of these three policy developments on Landlords remains to be seen

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Environmental Management

New role for surveyors

by Neil Turner, Stuart Gronow and Guyn Prescott

Environmental issues are becoming increasingly important to the surveying profession, such that both the RICS and the Society of Property Researchers have sought to identify the implications for the property industry of increasing environmental concerns and legislation[1].

To date, the vast majority of this research has examined the physical aspects of property development, for example, the design of environmentally benign buildings, and the issues arising from sustainable development and contaminated land. Environmental Management Systems, on the other hand, are non-physical, but nevertheless are likely to cause major repercussions in the property industry.

This article outlines why surveyors should take a leading role in the implementation of these systems and illustrates how they could affect property investment decisions in the future.

Stuart Gronow MA BSc ARICS FSVA (above left) and Guyn Prescott MA ARICS (above) are principal lecturers in the Department of Property and Development Studies at the University of Glamorgan. Neil Turner BSc (left) is undertaking research into EMSs through a project sponsored by BP Chemicals.

Businesses of all types and sizes are becoming increasingly aware of the advantages of demonstrating sound environmental performance. This recognition has taken place due to increasingly stringent environmental legislation, Government economic policies incorporating environmental concerns and a growth in environmental awareness by both employees and the public at large. Companies are, therefore, seeking to protect themselves against possible future discrimination towards environmentally unfriendly organisations.

One way of achieving this is the implementation of an Environmental Management System (EMS). BS 7750, published by the British Standards Institute in March 1992, offers detailed guidance to organisations wishing to implement such a system. However, accreditation to the standard is not possible until later in 1993 at the earliest.

The system is basically a management tool which allows an organisation to establish procedures to set environmental objectives, to achieve compliance with these objectives and last, but perhaps most important, to demonstrate to all interested parties this compliance. It does not set environmental performance criteria, but provides a model on which organisations can base their policies and objectives which will, in turn, improve their environmental standing.

The organisation must, from the outset, have a genuine *commitment* to improving its environmental performance, since the system's implementation will take up company time and resources. The *initial review* will establish the firm's position with regard to the environment, including an evaluation of legislative requirements and of its effect on the environment. This will provide the information to formulate the *policy statement* which will outline the main areas of environmental concern for the organisation. Those who manage or perform work affecting the environment will have their responsibilities defined and documented under *organisation and personnel*. Having uncovered its environmental *effects*, the company should compile a *register* of the most significant. This register will form the basis for the setting of *objectives and targets* to reduce the impact of the company's activities on the environment.

A key part to the system is the *management programme* which will describe how objectives will be achieved and who will be responsible for achieving them. This information forms the *documentation and manual* of the system, showing that a system exists.

Once up and running, some *control* is obviously required. It will include, for example, procedures for verification of compliance. The *records* will then demonstrate the extent to which objectives and targets have been met. The *audit* will establish whether the aims of the Environmental Policy Statement are being achieved. Finally, the *review* will be carried out at appropriate intervals to establish the continuing applicability and effectiveness of the EMS in view of changing market conditions, legislation or other relevant factors.

Property market consequences

The most obvious consequence for forward-thinking firms of surveyors is an increase in workload at a time when the profession is experiencing, by common agreement, its toughest period ever.

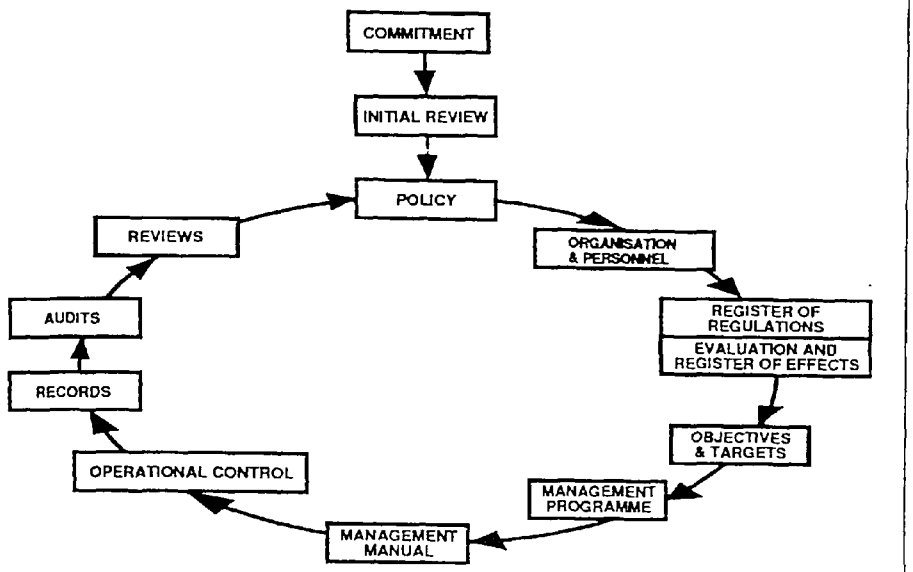
With this in mind is it unreasonable to expect surveyors to become actively involved in that part of the development cycle which lasts the longest (occupational period), and which can have an immense and lamentable effect on the environment? There is a lengthy period when the surveyor is not involved with the property except, for example, when a valuation or remedial work is required. In the past this could easily be justified on the grounds that environmental issues were unimportant and that the tenant has not specifically asked for a service. But at a time when traditional professional boundaries are confused it would seem sensible to include EMSs under the umbrella of professional surveying services — and thus participate in a fast-growing area of consultancy.

Apart from the economic benefits of embracing the EMS concept, there are other, perhaps less tangible, advantages on offer for the profession. For years, surveyors have been associated, rightly or wrongly, with the reckless development of property, where the only concern was density of development and profit margin: they are not readily perceived as guardians of the natural environment. However, given the major responsibility that surveyors do have for the environment, the EMS presents an excellent opportunity to improve environmental credentials, increase market share and extend the knowledge of the profession as a whole. Becoming involved with the environmental inflows and outflows of a property during the longest period of the development life-cycle would also go a long way to reinforcing the claim to be experts of the built environment.

"The organisation must, from the outset, have a genuine commitment to improving its environmental performance, since the system's implementation will take up company time and resources."

This is the key argument in persuading surveyors to become more concerned about the occupational requirements of their customers. If clients are taking environmental concerns very seriously, should not surveyors provide a service to help them? The point is brought home more clearly when the amount of time spent in the built environment is considered. In 1945, 40% of our

Schematic diagram of the stages in the implementation of an environmental management system



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time was spent in buildings or cars; today that figure approaches 90%[2]. Therefore, when put in such a context, the conflict between the built and the natural environment can quite justifiably be described as one of the most important issues facing man. The EMS could become a valuable tool for the surveyor in helping to provide, maintain and manage the built environment so as to allow it to exist in harmony with the natural environment, so far as possible.

Property values

It is often said that the growing concern about environmental issues affect property values. To date, however, this view has largely been confined to contaminated land and the Environmental Protection Act 1990[3].

However, land uses not normally associated with contamination, or with producing large quantities of noxious waste, could be entering a new era where the value of the property may be influenced by environmental concerns.

For this to happen the "stakeholders" of the property (ie investors, insurers, consumers, employees, landlords, environmental groups and the general public) would have to begin to regard the environmental performance of an organisation occupying property as instrumental in their desire to acquire an interest in that property. Investors and insurers are no doubt concerned by the tightening up of environmental law and do not wish to expose themselves to properties which will transgress this legislation in the future. If they decide that the existence of an EMS is necessary to ensure that the tenants occupying their property are not an environmental risk, thereby avoiding possible litigation, then such tenants, and possibly the properties which they occupy, will become more attractive to investors. If this happens then the values of many different property types could be affected.

This poses a new question for surveyors. Will the value of a property be affected by the environmental activities of the organisation occupying it? Of course, one way of looking at this is to regard the environmental performance of the occupiers as part of the "tenant covenant" considerations, ie if the covenant is strong then the investment is more attractive. It is not hard to imagine an investor in the future inquiring about not only the financial but also the environmental probity of the tenant.

Financial institutions

As implied above, some of the major players in the commercial property market, such as insurance companies, are precisely those organisations which, through the nature of their business, are more environmentally aware than most. In the United States, most insurance companies have withdrawn from offering general liability for pollution. Insurance companies the world over provide incentives for those insured to identify and improve their risks against environmental legislation. With environmental concerns and legislation set to increase in the future still further, it is feasible that these organisations will, one day, not only prefer to invest in property occupied by environmentally aware organisations but also introduce these considerations into their lease structure by initiating an EMS clause.

Banks and other organisations that lend money for property development are already concerning themselves with environmental liability in terms of the issues outlined above, ie contaminated land and pollution levels. If they take this process a step further and regard the EMS as part of this overall environmental package, then it will be in the developer's interest to let property to organisations which embrace the concept and either offer the service themselves or ensure that

"Once in place, the EMS tells everyone that the company has its environmental effects documented and regulated, and that the lender need concern himself less with worries over future environmental liability."

the incoming tenant sets up his own EMS. Again, the standard lease could be altered to accommodate these environmental concerns.

Alternatively, the company which has a valuation carried out for the purposes of raising capital against an existing property may find in the future that the existence of an EMS facilitates this process. Once in place, the EMS tells everyone that the company has its environmental effects documented and regulated, and that the lender need concern himself less with worries over future environmental liability. By contrast, the organisation which has no environmental policy may discover that the bank not only drags its feet but also refuses to provide funds for fear of the organisation falling foul of future legislation. The possible deterioration of covenant may also be considered by the bank, which may decide that the lack of an EMS is a real threat to the future of the organisation.

If all this sounds too far fetched, one need only read the words of Lord Alexander, the chairman of the National Westminster Bank:

> . . . lending policies are now designed to reflect the potential damage a customer's business might do to the environment. The changes take into account the environment as well as economic costs . . . and make good business sense[4].

Conclusion

EMSs will affect the property market. How they manifest themselves and to what extent they influence the way in which investors look at property as an investment is open to conjecture. However, those who refuse to accept that the concept has any relevance for the surveyor would do well to recall the dismissive attitude to which green issues in general were subjected only a few years ago.

References

[1] The response of the property industry to environmental change. RICS and Society of Property Researchers, spring 1992.

[2] "Here's to your good health", *Sunday Telegraph* October 4 1992.

[3] Environmental Protection Act 1990. HMSO.

[4] "Top Team Commitment", *Environment Review*, National Westminster Bank, 1992.

Managing the green portfolio

Neil Turner, Stuart Gronow and Gwyn Prescott examine some aspects of environmental protection

The significance of the environmental debate to the property manager, and the valuation profession as a whole, is not confined to contaminated land. It goes much deeper than that and involves understanding the interaction between the new environmental consensus and its effect on the tenant's ability to pay rent to a landlord, which, after all, is a fundamental requirement of any property interest.

This article outlines the potential benefits of managing a portfolio of properties occupied by organisations which have adopted environmental management practices. The virtues of managing land which has received a clean bill of health through an environmental site audit have been discussed elsewhere (The Real Value of Healthy Land, Lesley Ann Davis, Planning and Legal, *Estate Times*, May 25 1993). This article argues that it is equally important for property managers to have concern for the environmental performance of the tenants occupying the properties they manage.

Consensus

A new "consensus" for environmental protection has emerged which has been influenced by major international initiatives. *The Brundtland Report* (published in 1987 by the World Commission on Environment and Development) firmly established the concept of sustainable development as the basis for integrating economic theory with environmental protection. The Pearce Report, 1989, argued that in order for sustainable development to achieve its aims, it is necessary ". . . to ensure that environmental values are integrated into economic decision making" (*Blueprint for a Green Economy*, Pearce, Markandya and Barbier, Earthscan Publications, 1989).

This is accepted both by the EC's Fifth Environmental Action Programme which sets out the EC's objectives on environmental policy and by the UK government in *This Common Inheritance* (Government White paper, HMSO, 1990) and subsequently in the Environmental Protection Act. All the above accept the concept of the polluter pays principle (PPP), and acknowledge its importance in the policies to reduce environmental damage.

In brief, the international response has become two-pronged, and this was reaffirmed at the United Nations Conference on Environment and Development held in Rio de Janeiro in June 1992. First, ever stricter environmental legislation will significantly harm the economic performance of companies which do not improve their environmental performance. Second, attributing monetary values to environmental resources and services, which were hitherto provided free, will mean that an organisation which does not reduce its environmental impact will also pay for the consequences in economic terms. Fig 1 outlines the many different pressures for environmental change which face the tenant today.

An Environmental Management System (EMS) is a management tool which allows an organisation to establish procedures to set environmental objectives, to achieve compliance with these objectives and lastly, but perhaps most importantly, to demonstrate this compliance to all interested parties. It does not set environmental performance criteria, but provides a model on which organisations can base their policies and objectives which will, in turn, improve their environmental standing. The recent British Standard, BS 7750, provides the framework which will allow an organisation to develop an EMS.

The benefits offered by such a system to a tenant are:

- ☐ reduction in the risk of facing charges for environmental liability;
- ☐ lower insurance premiums;
- ☐ better relations with regulators;
- ☐ substantial cost savings;
- ☐ generates a competitive advantage;
- ☐ public relations opportunities;
- ☐ facilities finance from banks;
- ☐ attracts discerning personnel;
- ☐ enhances business, customer and community relations;
- ☐ responds to the "consensus" which is required for a company to survive into the next century.

The legislative changes, particularly the shift towards stricter liability regimes for environmental damage and pollution imposed by the European Community and the Council of Europe, are causing concern. The issues are complex, but quite simply there is a very comprehensive, and at times acrimonious, debate under way to try to establish who should pay for cleaning up past and future environmental damage.

Liability

It should be noted, however, that liability for contaminated land already exists. For example:

- ☐ criminal liability (eg for leachate which causes water pollution); or
- ☐ clean up liability under Section 161 of the Water Resources Act 1990 or Section 61 of the Environmental Protection Act.

This liability can attach to owners and occupiers of land. Managers of property should, therefore, beware, as these terms are not defined, and it is widely believed that a landlord could be held liable for environmental damage under certain circumstances.

Furthermore, at the moment there is a very onerous interpretation of common law concerning environmental damage. A brief review of the Court of Appeal decision in Cambridge Water Company v Eastern Counties Leatherwork (1992) shows that a company which did not transgress legislation, and was not even negligent in tort, was held liable and has been required to pay more than £1,000,000 of compensation for polluting an

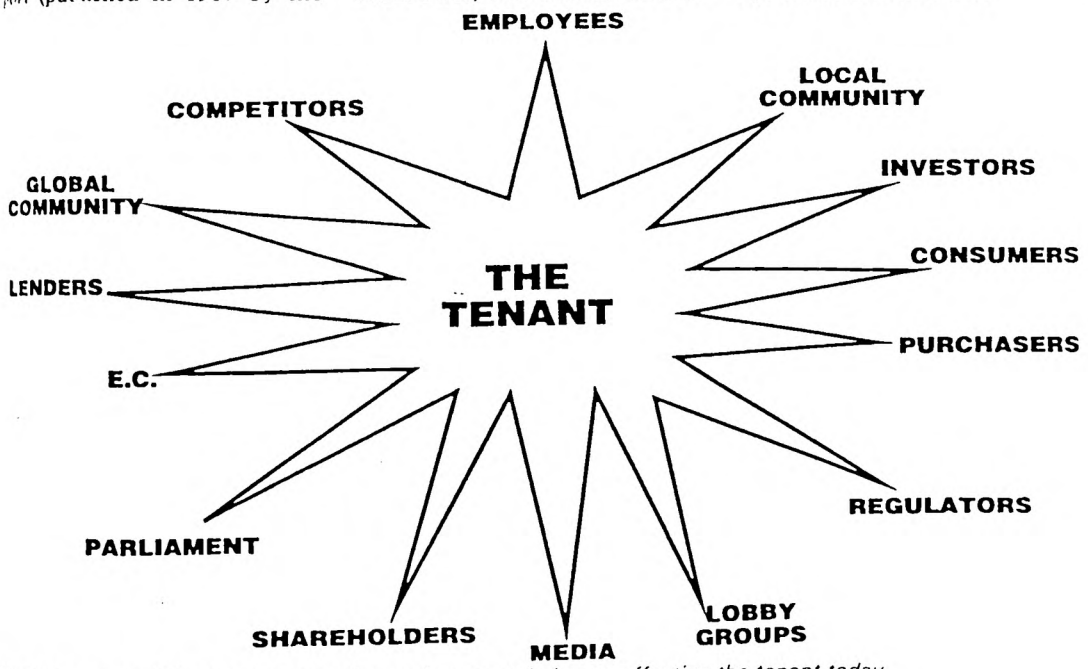

Fig 1: the many different pressures for environmental change affecting the tenant today

derground water course. It is worth noting that the activi- of the tannery would not have granted registration under sec- 143 of the Environmental tection Act 1990.

udit

Property managers should efore ensure that an environ- tal audit of any industrial site arried out. In future, this will ome standard practice, as ironmental risks become ke prominent and more cases to court. However, the audit site will only solve part of the blem and only address some he risks.

Industry needs to embrace a re holistic approach to the ironment and many compa- s are doing so through the oduction of an EMS. The cial advantage of this ap- ach is that it addresses *future* dustrial practice. An EMS is an empt to reduce all the environ- tal risks faced by an organis- on whereas a site audit will ly assure the manager that, at time it was carried out, no tamination of the site in ques- had occurred. The latter is simply a snapshot of environmental risks associated with the land and not the occupier.

By contrast, an EMS illustrates that the company's effect on the environment is documented and regulated and that the landlord need be concerned less with future environmental liability. These are the assurances that banks and financial instutions are looking for when making investment decisions and the industrial property manager should, of course, have the same concerns.

The existence of an EMS will also help to satisfy a fundamental need of the landlord. The rent payable is probably derived from the tenant's operations on site and the profits generated by these activities. With no explicit system established to address all the pressures facing the tenant, outlined by Fig 1, these profits are being put in jeopardy. The landlord's income is, thus, under direct threat, and this could either result in voids in the portfolio or even liability for environmental damage.

The property manager has to be aware of environmental risks. However, these risks are not confined to the environmental health of the land upon which the property sits. There is also the risk that the tenant, through his own actions in not performing to a certain environmental standard, will affect the property manager's performance. This could occur through increased risks in liability for environmental damage and also by the organisation not accepting the significance of the environmental consensus and its impact on future economic performance. The long-term economic performance of the tenants being managed is obviously a paramount consideration of the property manager.

Voids

It is apparent that the prospect of voids in the portfolio will be substantially reduced if the tenants can convert the environmental threats into opportunities by adopting an EMS. With the above benefits, a tenant will be in a far better position to pay a rent to the landlord. Indeed, the tenant would have "affected the returns by his actions" (Baum and Crosby, *Property Investment Appraisal*, Routledge, 1988), ie the environmental element of tenant risk will be reduced and the corresponding benefits will present themselves to the property manager.

It has been noted that sustainable development will require companies to integrate environmental and economic decision-making. As environmental costs begin to be internalised and the PPP becomes more established, the ways in which capital values of companies are determined in the marketplace will begin to change.

Those tenants who amalgamate the two issues, through an EMS for example, will be perceived as more valuable in the future. The strength of the tenant's covenant could therefore be enhanced by such a system. This should not be overlooked by those involved in estate management or indeed valuation. ■

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DIARY DATES

arch

Development funding: ding schemes for the illennium, afternoon, Kingston on Thames.
NTACT Diana Lawson
1 547 7066

Schedules of dilapidations – s and traps, one day course, ndon W1.
NTACT The Registrar
1 404 3040

1994 property update nference, London.
NTACT Michelle Tobias
1 441 8585
6 hrs CPD

The property secretary day, one day conference, ndon W1.
NTACT Amelia Tinsley
1 404 3040

Building construction – oject management, evening, atherhead.
NTACT Arthur Thackray
1 545 3078
CPD

14 *Lease renewals and rent reviews roadshow,* evening, ISVA HQ.
CONTACT Alan Marks
071 930 1070
CPD

15 *The sixth annual business parks conference,* one day conference, London W1.
CONTACT Amelia Tinsley
071 404 3040

15-16 *Making successful presentations,* two day course, London N3.
CONTACT Barbara Malpass
081 343 0401

16 *Rating; are you ready for the revaluation?* evening, Kingston upon Thames.
CONTACT Diana Lawson
081 547 7066

17 *The property implications of contaminated land,* one day conference, London W1.
CONTACT Amelia Tinsley
071 404 3040

18 *The management of leasehold property,* one day course, London W1.
CONTACT The Registrar
071 404 3040

24 *What is that business worth?* one day course, London W1.
CONTACT The Registrar
071 404 3040

25 *Preparing and operating planned maintenance programmes,* one day course, London W1.
CONTACT The Registrar
071 404 3040

April

8 *Rent determination under the Agricultural Holdings Acts,* one day course, London W1.
CONTACT The Registrar
071 404 3040

11 *Planning – a complete briefing on the relevant legislation and planning regime for non-specialists,* one day course, London W1.
CONTACT The Registrar
071 404 3040

12 *Performance measurement,* one day course, London W1.
CONTACT The Registrar
071 404 3040

18 *Understanding contaminated land and the consequences of contamination,* one day course, London W1.
CONTACT The Registrar
071 404 3040

18-19 *Private finance in urban development,* two day conference, London W1.
CONTACT AIC Conferences
071 329 4445

19 *Valuing on the basis of comparable evidence,* one day course, London W1.
CONTACT The Registrar
071 404 3040

20 *Advanced presentation techniques,* one day course, London.
CONTACT Barbara Malpass
081 446 6005

26 *Funding property transactions,* one day course, London W1.
CONTACT The Registrar
071 404 3040

Deadline for May-25 March

Environmental performance — tenant assessment

Environmental issues are becoming increasingly important in investment decisions. The authors examine methods of assessing the level of environmental risk present in property investments.

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The notion of investment risk is being substantially altered by environmental issues. As a consequence the equity market is developing an environmental risk rating system, based partly on a company's environmental management activities, as a guide to possible liabilities and therefore poorer returns for the investor. Similarly, it is becoming increasingly recognised by property investors that environmental risks should be considered in the investment decision-making process.

Similar tools to those being developed in the equity market could be used to assist in assessing the level of environmental risk inherent in a property investment. This would facilitate the correct pricing of an investment property consistent with the real level of environmental risk that an investor runs.

Environmental issues

A recent survey carried out by Hillier Parker (1994) illustrated that institutional investors are not exclusively concerned with environmental issues in an historical context. That is, they also consider the current use to which property is being put as well as the past uses of a site which may or may not have involved uses which are potentially contaminative.

The development of environmental legislation can explain the increased awareness among investors of environmental problems which can occur from a tenant's activities. As others have argued previously, the real issue facing property owners is the prospect that the tenant will damage the landlord's income or assets by "falling foul of the plethora of environmental legislation and, in particular, the clean-up powers of regulatory authorities" (Deanesly and Papanicolaou, 1993). The ambiguous wording of legislation, very little of which has been tested in the courts, could leave the investor or lender with environmental liabilities, or at least higher management costs. This could entail clean-up costs or impede future development of the site, since the presence of contamination, for example, is a material consideration that local planning authorities take into account in determining planning applications (Boxwell, 1993).

The latest consultation paper from the DOE entitled *Paying for our Past* outlines the proposed arrangements for controlling and remedying contaminated land and other damage to the environment, and illustrates the uncertainties which landlords now face:

> The regulators can, depending on circumstances and on the wording of the relevant statute, enforce obligations on owners, occupiers or persons. The provisions vary as to whether they apply to persons who caused or knowingly caused or knowingly permitted the actual or likely problem. None of the statutes tries to define " polluter" for this purpose". (DOE/WO, 1994).

In summary, an investor's return can be affected by environmental problems which develop from the current activities of an occupying tenant.

Company performance and investment

It is not just the property market which is learning to deal with environmental risk; other financial markets are also coming to terms with the issue. The equity market has for some time been considering the environmental performance of companies when making investment decisions. A survey undertaken by James Capel in 1990 found that "more than a third of fund managers take environmental factors into account in reaching investment decisions" (Thomas, 1990). The latest developments have come from the Centre for the Study of Financial Innovation, which produced a report entitled *Rating*

"The development of environmental legislation can explain the increased awareness among investors of environmental problems which can occur from a tenant's activities."

Environmental Risk (Lascelles, 1993). This suggested that investors should consider the potential environmental liabilities to which a company *may* become subject before the decision to invest is taken.

This was reinforced by the Hillier Parker survey where it was established that 67% of property investors examine the current activities of a tenant on site. Lascelles also suggests that the investor should examine the potential for the company to be able to absorb environment-related losses. It could be argued that property investors already do this to a minor degree, albeit unwittingly, when they consider covenant strength.

The equity market seems to be taking these environmental issues a stage further, however, in its recommendation that investors

should attach weight in the investment decision-making process to the environmental management practices displayed by a company. The rationale for this is that an environmental management system (EMS) can reduce the level of environmental risk to which an investor will be subjected*.

Equity and property investment

There are, of course, differences between equity and property investments. In the event of environmental problems developing within a company the equity investor will be subject to the risk that dividends will not be paid, or that they will be reduced or, ultimately, a fall in the share price will take place, or any combination of all these.

The property investor, on the other hand, is insulated from much of this risk since rent is a prior charge on a company and is paid before dividends.

This argument ignores the likelihood, however, of the reduced security of rental payments provided by a company which suffers substantial losses through environmental liabilities. This may make the property less attractive to potential investors and could well

"In order to assess the environmental risk inherent within their property portfolios, investors are surely right to examine the existing uses of tenants."

affect the yield and thus the valuation of the occupied property.

Furthermore, while the equity investor may lose dividend payments, and possibly the capital used in the original purchase price of shares, the property investor, left with an empty building and liability for pollution restoration, could face clean-up costs far in excess of the original purchase price of the property. It should not, therefore, be only equity analysts who express concern over potential environmental liabilities caused by poor management practices of companies.

Investment decisions

It is suggested that property investors will therefore benefit from measuring a tenant's environmental performance before making investment decisions. Those tenants who have adopted environmental management practices will be making efforts to reduce their potential because environmental pollution and will have commitment to comply with environmental legislation. This would be of particular importance to investors active in the B1 and B2 sector where potentially polluting processes and activities are carried out.

The Government's intention to abolish the special industrial use classes, and bring these activities together within the B2 general industrial class (DOE, 1994), will also increase the importance of investor-awareness of what activities are being carried out on site and what management activities are in place to reduce the potential for pollution incidents to occur.

It should be highlighted, however, that environmental risk does not attach itself only to industrial property. While occupiers of office buildings will not present the property investor with potential environmental liabilities through current use, if the tenant is part of a larger organisation, with substantial industrial undertakings for example, then the potential environmental liabilities which may exist off site become important.

How well the company as a whole can absorb environment-related loss, and the management procedures in place to reduce these liabilities occurring in the first instance, can have a bearing on the ability of a tenant to continue paying a rent to the landlord of an office property.

It is this type of holistic approach which is being developed in other investment markets and is now considered pertinent to the property investment market.

Environmental performance and security of income

It is also argued that tenant environmental performance will increasingly influence the strength of tenant covenant itself and therefore affect security of income and, ultimately, property values. Research undertaken by Fletcher King and the University of Glamorgan (Turner and Scott, 1994) suggests that many businesses expect to enhance competitiveness and reduce costs by implementing an EMS. The Advisory Council for Business and the Environment (ACBE, 1992) has also shown that companies can reduce the costs of finance and insurance by adopting environmental management practices.

With environmental pressures set to increase in the future through enhanced consumer awareness, increased environmental education at all levels, and many central and local governmental departments and private companies asking for evidence of environmental management before selecting suppliers, environmental performance could become very important to the level of business activity enjoyed by a company. Indeed, some commentators have suggested that company profit forecasts based on historic sales, without any regard for the environmental pressures that a company may face (and, more specifically, regardless of their response to these issues), can no longer be relied upon (Burnett-Hall, 1994).

The legislative pressures mentioned earlier also need to be considered in the context of security of income. Since it is the duty of the National Rivers Authority, for example, to maintain and improve the quality of controlled waters, it can be expected that discharge consents will be subject to regular review and continual reduction. The role of an EMS in helping a company to achieve these reductions

"A survey undertaken by James Capel in 1990 found that 'more than a third of fund managers take environmental factors into account in reaching investment decisions'."

and continue operating within the law should not be overlooked. Similar provisions exist within the Environmental Protection Act 1990 where the ultimate sanction, against tenants who disregard the environmental consequences of their actions, could be the withdrawal of licences needed under Integrated Pollution Control and Local Authority Air Pollution Control. Losing a licence would mean that a company could no longer operate from a given site, thus raising doubts as to its ability to fulfil contractual obligations within leases, ie paying a rent to a landlord, and maintaining, repairing and insuring property.

Security of income and valuation in the 1990s

As a recent IPD report has indicated, the recovery in the property investment market has had more to do with the behaviour of bond markets (where yields fell sharply last year, taking property yields with them) than with a significant upturn in tenant demand, which would indicate future rental growth (Moulder, 1994). The majority of the property market is unlikely to experience significant rental growth in the short to medium term. Income security risk is, therefore, likely to remain a dominant factor in the 1990s, and "be far more important than in the era of rapid rental growth in the 1970s and 1980s" (McIntosh, 1993). A system which could help to reduce this risk is likely to be taken far more seriously by investors in this decade than in the previous two.

Conclusion

In order to assess the environmental risk inherent within their property portfolios, investors are surely right to examine the existing uses of tenants. The property investment market of the near future, however, may also witness investors querying the management which controls these uses, both on and off site. The following questions need answering:

(1) What environmental liabilities could the tenant face, either on site in the case of an

* *Estates Gazette* March 27 1993, pp98-99 for a account of Environmental Management Systems.

industrial type property or in any other part of the organisation in the case of commercial property?

(2) Is the tenant capable of absorbing environment-related losses without interrupting income flow or leaving liabilities to be passed on to the investor in the case of tenant default and the vacation of the building?

(3) Does the tenant have an EMS in place to reduce the risk of environmental incidents occurring in the first instance? Accreditation to a recognised system such as BS 7750 should provide the investor and, perhaps more important, potential investors with more confidence that environmental issues are being addressed by the tenant throughout his organisation.

Only on receipt of a satisfactory response can an investor be content that the environmental risk inherent in a property investment decision has been held at a minimum level. The Mallinson Report recommended that valuers need to include more widespread comments on valuation risk factors. Environmental issues have now become another risk of property ownership and, as such, they demand the attention of valuers.

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■

Criminal liability for damage

Landlords can be held criminally liable for environmental pollution caused by their tenants. The authors examine how such liability may arise and what landlords should do to mitigate their exposure.

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Who are potentially polluting tenants?

Tenants undertaking activities which are capable of causing contamination to land and pollution to watercourses occupy many different types of property. It would be naive to suggest that such uses are exclusive to heavy industries. The expanding body of case law, government and regulatory guidance and the professional advice from environmental auditing firms illustrate that polluting tenants can, and do, occupy properties which fall within the B1, B2 (excluding the former Special Industrial Groups) and B8 classes of the Use Classes Order (Turner *et al*, 1994).

Not surprisingly, property investors are developing strategies to minimise their potential exposure to this type of risk. Hillier Parker (1994) and Lizieri (1995), respectively, found that 67% and 75% of property investors take into account the present occupiers' use of premises to assess levels of environmental risk. The updating of lease provisions, in an attempt to ensure that tenants follow best environmental practice, is further evidence that the property market recognises the risks of tenants causing environmental damage. Such practice reflects landlords' opinion that historical leases offer inadequate protection from environmental contamination arising from tenants' activities (Aylwin, 1992 and Pagella *et al*, 1993).

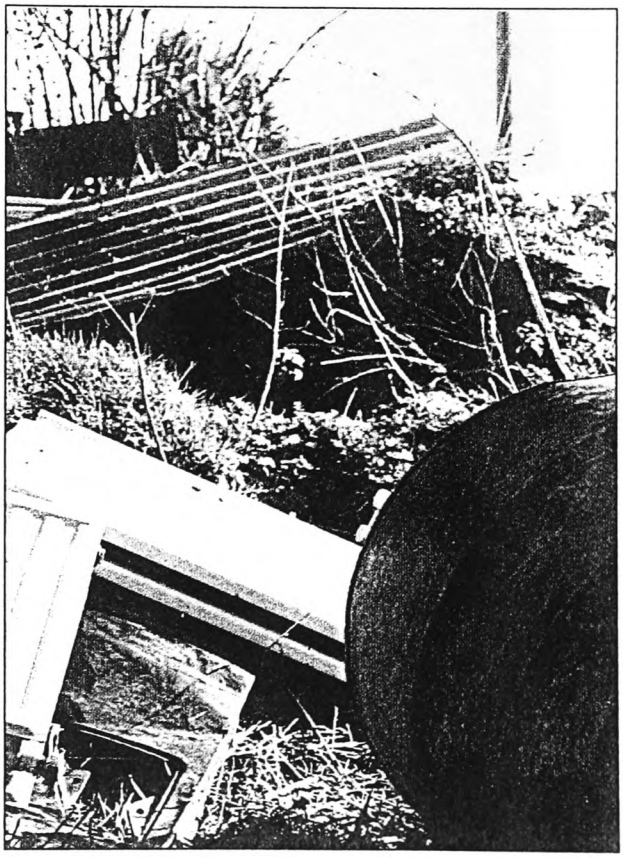
Landlords' criminal liability

It is important that both landlords and their professional advisers appreciate their own exposure to environmental liability and understand the basis on which criminal liability for environmental damage is determined.

In general, liability is imposed on those persons who have either "caused" or "knowingly permitted" the polluting act in question. These statutory trigger terms[1] are contained within the Water Resources Act 1991 (WRA) and the Environmental Protection Act 1990 (EPA). Persons will be liable under section 85 of the WRA if they "cause" or "knowingly permit" poisonous, noxious or polluting matter or any solid waste to enter controlled waters. Offenders face imprisonment for up to two years or an unlimited fine or both.

Similar trigger terms are contained within Part II of the EPA, which deals with the principal pollution offences relating to waste management.

Section 33 makes it an offence to "knowingly cause" or "knowingly permit" the deposit of directive waste[2] in or on land and/or the carrying out of disposal or recovery operations of directive waste (in each case unless it is in accordance with a waste-management licence) and/or the treatment, keeping or disposal of directive waste in a manner likely to cause pollution of the environment or harm to human health.



YVONNE TOMS

Dealing with waste — pollution offences relating to waste management are described under the Environmental Protection Act 1990

Again, offenders face imprisonment for up to two years or an unlimited fine or both.

In relation to these statutory trigger terms, two important questions arise for landlords:

(1) Under what circumstances will they be held criminally liable for pollution incidents emanating from the activities of occupying tenants?

(2) What strategies can be implemented to reduce their exposure to such risks?

In addressing the first question, it is important to consider the trigger terms themselves.

Damage limitation — landlords can, in some cases, be held liable for "causing" environmental comtamination committed by their tenants, even when the landlords have taken no active participation in the damage

"Causing"

Until quite recently, it seemed inconceivable that, where tenant activities resulted in the contamination of land or the pollution of watercourses, the landlord would be held liable for "causing" such environmental damage. It has been established for many years that the term "causing" required a positive act on the part of the defendant. To "cause" pollution involves some active participation in the operation or chain of operations resulting in the pollution of controlled waters. "Mere standing by and looking on" (ie doing nothing to prevent pollution) is insufficient conduct to amount to causing.[3]

This reasoning appeared to be followed by the Court of Appeal, much to the relief of the landlord of an estate in the case of *National Rivers Authority* v *Welsh Development Agency*.[4] The WDA had developed an industrial estate, and factory units were subsequently let to various tenants. Prior to the development the WDA was granted a consent by the NRA to discharge surface-water run-off from its site into controlled waters. Each lease prohibited the discharge of trade effluent, since this would cause pollution and lead to a breach of the NRA discharge consent. As a result of caustic soda being discharged by one of the tenants, a pollution incident occurred. The NRA claimed that the landlord had "caused" the polluting discharge as it had constructed and retained overall responsibility for the drainage system. The NRA was alleging that, as a result of the landlord's acts, pollution had therefore occurred. At appeal it was held that the landlord was not guilty, as it had not been involved in a positive or deliberate act.

This decision does, however, need to be looked at differently in light of a more recent and authoritative case, decided in the House of Lords. In *National Rivers Authority* v *Yorkshire Water Services Ltd*[5] it was held that, because the defendant had constructed a drainage system for gathering effluent, it was responsible for setting up an arrangement deliberately intended to carry the result of that treatment into controlled waters and therefore could be said to have "caused" the discharge and, accordingly, the pollution. The defendant escaped liability by invoking a statutory defence available to it by virtue of being a statutory sewerage undertaker, a defence not available to other bodies, including landlords, who might find themselves in similar circumstances.

The implications for landlords are clear. Following the House of Lords' reasoning, by setting up a drainage system on an industrial estate, which carries run-off, or effluent, from industrial units to public sewers or controlled waters, it could be argued that the landlord is participating in active operations involving — as a result of an unauthorised effluent discharge — the pollution of those public sewers or controlled waters. In other words, the landlord's positive act is simply constructing and maintaining a drainage system. In these circumstances a landlord may find itself unwittingly liable for "causing" pollution where one of its tenants has discharged harmful substances into the estate sewers, even if such discharge is in breach of the provisions of the lease.

"Knowingly permitting"

This statutory trigger term may be just as likely to catch out unsuspecting landlords. Case law[6] has established that "knowingly permitting" a pollution incident has two important elements: "knowledge of"; and the "power to prevent" the polluting activity.

One of the ways in which landlords have sought to reduce environmental risk has been to make revisions to new leases. This often involves the updating of general provisions — for example, tenants will be prohibited from discharging trade effluent (or only certain quantities of certain chemicals will be permitted to be discharged) and from transgressing environmental legislation. Although restrictive user covenants and restrictions on subletting and assignment are viewed by landlords as methods by which the landlord's exposure to environmental risk can be reduced, most are reluctant to introduce them owing to the inevitable effect on rent review.

Landlords are correct to attempt to insert provisions to ensure that tenants do not cause environmental damage by updating general provisions within leases. However, it is important that, once they are explicit about a tenant's compliance with environmental legislation, they undertake all reasonable steps to monitor that the tenant is actually complying.

Where environmental damage has occurred, and the landlord has failed to check the tenant's activities over a period of time, it is the landlord who could become liable (see, for example, Tromans and Turrell-Clarke, 1994 and Smithers, 1994).

It is not hard to envisage the following situation, which is likely to be found on many industrial estates throughout the country. The tenant is carrying on an activity which involves the use/storage of chemicals of some description. These chemicals could be used in printing processes (typically a B2 use), research and development (typically a B1 use) or stored within a warehouse (B8 use). The tenant has covenanted:

> . . . not to discharge into the drains, sewers and pipes serving the demised premises any poisonous or noxious substances such that would cause the waters of any stream or river to be polluted.

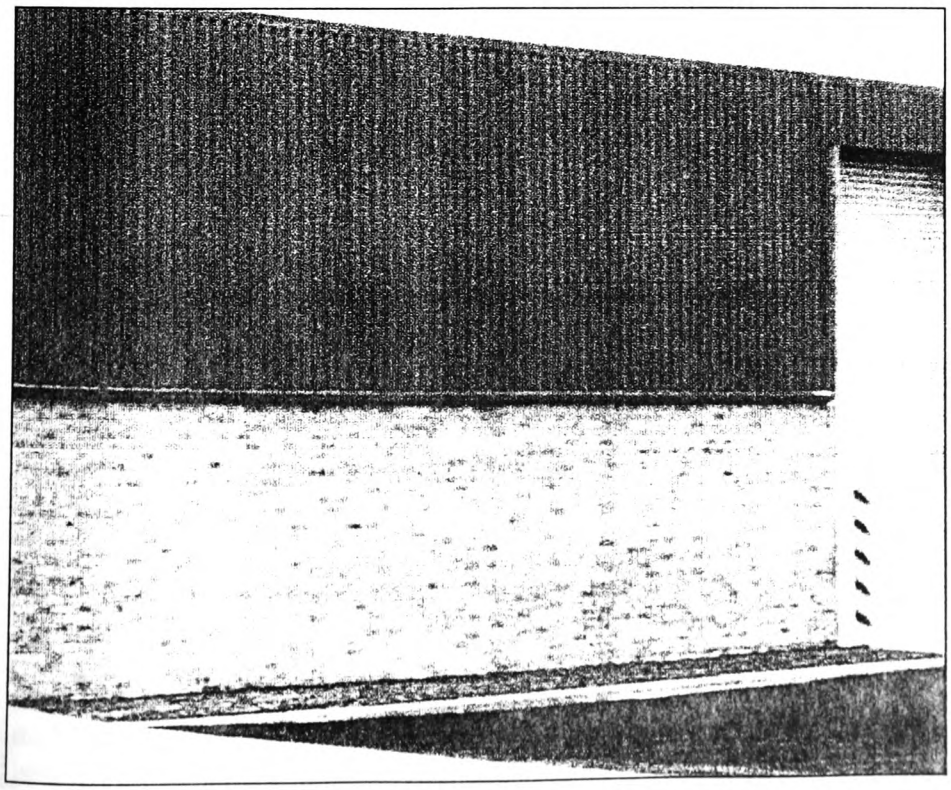
Where subsequent environmental damage occurs over a period of time, for example, polluting matter enters a controlled water, which is the result of external storage of chemicals in a manner which is insecure, unbunded, and situated close to surface water drains, the courts may well agree that the landlord should have been aware of this fact through the inspection procedures that the lease bestowed upon him. Indeed, it has previously been argued in these pages that a landlord is potentially "knowingly permitting" pollution ". . . where he fails to take action to prevent the onward migration of contaminants where he knew or ought reasonably to have known that such action was required" (Barrett, 1995:146). Along with the landlord's awareness of the pollution, he will also have a contractual remedy to prevent the tenant from continuing to pollute by virtue of the covenant outlined above.

Paradoxically, therefore, the tenant's covenants, which are designed to reduce the landlord's potential exposure to environmental liabilities, also provide the landlord with the two elements which are required for a "knowingly permitting" offence to have been committed, ie "knowledge of" and the "power to prevent".

Current best practice

Strategies which have been adopted by landlords to reduce their exposure to this type of risk include:

- When selecting new tenants and assignees, their potential to cause environmental damage is considered, often using the original (and now repealed) section 143 of the EPA register of contaminative uses as a guide.
- More restrictive user covenants, assignment and change-of-use procedures have been introduced within leases.
- Premises occupied by tenants undertaking potentially polluting activities are regularly inspected by management surveyors during the term. These surveyors are often equipped with "environmental inspection forms", which help to highlight potential problems.
- A minority of landlords, and usually those with significant holdings of industrial property, are beginning to encourage their tenants to develop environmental management systems in order to reduce the risk of environmental incidents.



Taking steps to reduce risk — some landlords of industrial property are encouraging tenants to develop environmental management systems

Whatever strategy is adopted by landlords, it will have to be implemented in an era of heightened environmental awareness throughout society as a whole. Guidance Notes from the RICS (1993 and 1995) suggest that surveyors need to be aware of the obvious signs of environmental poor practice in the current use of premises. Where general provisions within leases have been updated, providing landlords with a contractual remedy against tenants transgressing environmental legislation, it is important that management surveyors are regularly inspecting premises in the light of best practice guidance.

Where landlords suspect that environmental damage may result, they should be prepared to exercise their contractual rights in order to avoid prosecution under the headings of "causing" or "knowingly permitting" the pollution offence, as well as to preserve the value of their freehold reversion. ■

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Footnotes

[1] The concept of "trigger terms" was developed by Jarvis and Fordham (1993).

[2] Directive waste is defined by the Waste Management Licensing Regulations 1994 SI 1994 No 1056.

[3] *Alphacell* v *Woodward* [1972] AC 824; *Price* v *Cromack* [1975] 2 All ER 113.

[4] *National Rivers Authority* v *Welsh Development Agency* [1992] EGCS 160.

[5] *National Rivers Authority* v *Yorkshire Water Services Ltd* [1994] 3 WLR 1202.

[6] *Price* v *Cromack* [1975] 2 All ER 113; *Berton* v *The Alliance Economic Investment Co* [1922] 1 KB 742.

oil equivalent (mtoe) they still remain at an extremely low level.

Overall, the *energy intensity* of the EC economy, which has steadily fallen since 1985 by roughly 1% a year, increased in 1991 by more than 2%, although final statistics are expected to show a drop again for 1992.

These disappointing developments were echoed by a rise of 3.7% in *total emissions of* CO_2 in the EC, as compared to 1990. The greatest increase occurred in the domestic and tertiary sectors, where emissions rose by 12.5%.

The record of some of the individual Member States in 1991, in relation to energy efficiency gains and CO_2 emissions and fuel prices, is as follows:

DENMARK
After a steady fall in 1986-90, intensity increased considerably in 1991. A large rise in energy caused a rise in CO_2 emissions of 17.4%, mostly in the power generation (50%), and the domestic and tertiary sectors.

FRANCE
Energy efficiency, which had improved very slightly (0.3% per year) in 1986-90, fell 3.0%. The slowdown in demand for nuclear energy and an increase in energy consumption in transport led to a 4.7% rise in CO_2 emission, compared with an increase of 1.1% in 1986-90. Generally, energy prices fell.

(WEST) GERMANY
Energy intensity in the former West Germany dropped by an average of 2.5% a year in 1986-90 but is estimated to have increased slightly in 1991 due to a certain loss of energy efficiency in industry and a significant increase in the domestic and tertiary sectors. Generally, energy prices fell. Data from the former GDR are of such poor statistical quality for the period in question that it is of limited value in this context.

ITALY
Energy efficiency has not improved much since 1986, with energy intensity generally stable over the period. CO_2 emissions, which had increased 2.4% a year since 1986, dropped slightly (0.4%) in 1991. Power generation and transport were responsible for 30% and 26% respectively, of all CO_2 emissions last year. Fuel prices generally increased in 1986-91 but are starting to drop off for fossil fuels used in industry and transport.

UNITED KINGDOM
Energy intensity, which fell 1.1% per year in 1986-90, increased in 1991, due to a 1.7% increase in energy intensity in 1991 and growth in demand in the transport, domestic and tertiary sectors. CO_2 emission levels increased 1.1% in 1991, compared with 0.6% in the previous five years, largely due to a switch to nuclear power in the generating sector, which accounts for 37% of all emissions. In constant terms, all energy prices declined.

LAND

This article examines some of the implications of Environmental Management Systems (EMS) for the management of, and investment in, landed property. It will not examine in detail the elements of EMS, as this has been covered comprehensively on these pages previously.

Environmental management systems and property valuation

Neil Turner BSc (Hons), Stuart Gronow MA,BSc ARICS, FSVA and Gwyn Prescott MA, ARICS

Since systems, such as BS7750,[1] have as their fundamental aim the reduction of environmental impacts pertinent to the implementing organization, it is necessary to establish why a landlord should be concerned with a tenant's environmental performance, particularly since this has not been the case in the past.

Proposed legislative changes, particularly the shift towards more strict liability regimes for environmental damage and pollution by the European Community[2,3] and the Council of Europe[4], should start alarm bells ringing throughout the property industry. The issues are complex, but quite simply there is a very comprehensive, and at times acrimonious, debate underway trying to establish who should pay for cleaning up past and future environmental damage. The property profession will overlook these developments at their peril. The various provisions of the Water Resources Act and Environmental Protection Act also mean that a landowner could find himself responsible for cleaning up environmental damage and paying fines as a result of a tenant's poor environmental performance. As Deanesly and Papanicolaou contended in *IEM* **20**,[5] the real issue facing property owners is the prospect that the tenant will damage the landlord's income or assets by, 'falling foul of the plethora of environmental legislation and, in particular, the clean-up powers of regulatory authorities.'

Furthermore, at the moment, there is a very onerous interpretation of Common Law relating to environmental damage. A brief review of the Court of appeal decision in Cambridge Water Company Ltd *v* Eastern Counties Leather PLC[6] shows that a company which did not transgress legislation, and was not even negligent in tort, was held liable and has been required to pay over one million pounds of compensation for polluting an underground water source.

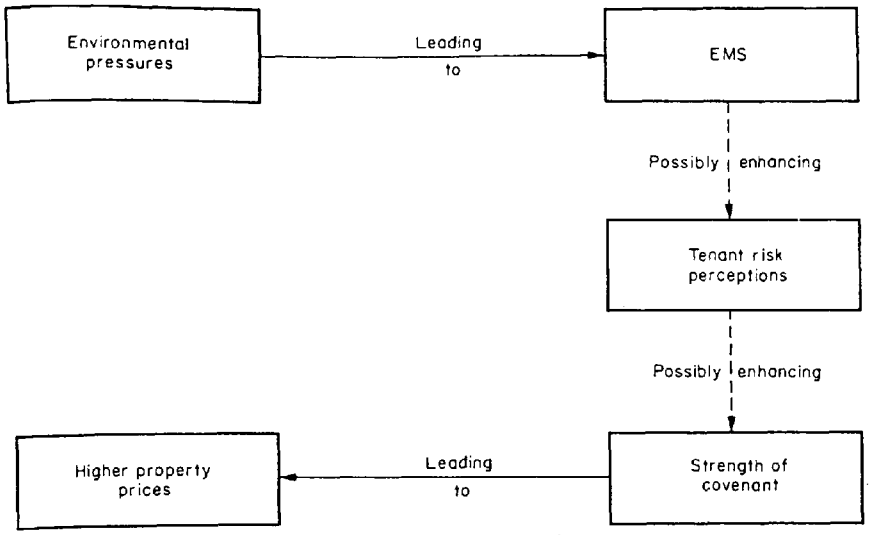

Figure 1. Environmental Management Systems and property investment.

Thus, there are very direct reasons why the property profession should be concerned about the present and future environmental performance of tenants who occupy property. However, there are also what the Surveying profession terms 'tenant risk' considerations. Tenant risk has been defined as, '..the chance that the tenant will affect returns (i.e. the landlord's income) by his actions'. [7]

The acceptance of the concept of tenant risk is testimony to the fact that property investors and landlords have an interest in the way in which a tenant runs his business. An investment in property is not simply an investment in bricks and mortar and the land on which the property sits, it also involves an assessment of the tenant's ability to pay a rent to the landlord/investor, which after all is a fundamental requirement of any property interest. The definition of tenant risk establishes that the ability of a tenant to deal with external business pressures will influence the desirability of that investment. Therefore, a company which is coping well with the major pressures of business and which can demonstrate this through proactive management techniques will be a more favourable investment.

There is little doubt that the environment is now an important, if not the most important, issue facing tenants. In brief, it '..is the political agenda, the social trend, and thus a vital element of business strategy'. [8]

Where the tenant has given the environmental issue the attention it requires, by implementing an EMS for example, the landlord's investment will receive two benefits. Firstly, there will be a reduction in risk of the investment becoming a liability, and secondly, the ability of the tenant to pay a rent will be enhanced and, as in Baum and Crosby's definition, the tenant risk will be reduced. Furthermore, if the tenant risk is reduced there could be a corresponding appreciation in what valuation surveyors term 'strength of tenant covenant', which is based on the perceived ability of the tenant to pay a rent to a landlord. For example, whilst 'National Westminster Bank' would be regarded as an excellent 'covenant' in a property investment, 'Turner, Prescott and Gronow Financial Services Plc' would not have the same attraction to the investor, as their perceived ability to stay in business, and, therefore, pay a rent in the future, might be viewed as vulnerable. This strength of covenant, not surprisingly, affects the valuation of landed property, as the investor is prepared to pay a higher price for a more secure income. The line diagram illustrates this principle. In today's stagnant property market, this strength of tenant covenant is probably as important as it has ever been, owing to the difficulties encountered in finding another tenant should a tenant default.

The concept assumes greater significance when some of the major players in the commercial property market are considered, such as insurance companies. These organizations are, through the nature of their business, more environmentally aware than most. With environmental concern and legislation set to increase even further in the future, it is quite likely that these organizations will, one day, not only prefer to invest in and insure property occupied by environmentally aware organizations, but also introduce these considerations into their lease structure by initiating an EMS clause.

Conclusion

The significance of the environmental debate to the property investor, and to the valuation profession as a whole, is not confined to contaminated land. It is more fundamental than this and involves understanding the interaction between the ever increasing environmental pressures being placed upon tenants and the affect this will have on the tenant's ability to pay rent to a landlord.

The property investment decisions of the future should not only include an environmental assessment of the land, but should also examine the environmental probity of the tenant. As environmental costs begin to be internalised and the Polluter Pays Principle becomes more established, the ways in which capital values of companies are determined in the marketplace will begin to change. Those tenants who amalgamate the environmental and economic decision making process through an EMS may be perceived as more valuable in the future. The strength of the tenant's covenant could therefore be enhanced by such a system. This should not be overlooked by those involved in property investment as the reduced risk of liability for environmental damage, and the possible increase in property prices will undoubtedly improve their own financial performance.

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2 *Proposed EC Directive on Civil Liability for Damage Caused by Waste.*
3 *Commission Green Paper Remedying Environmental Damage,* European Community, March 1993.
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5 Clare Deanesly and Chris Papanicolaou, *Integrated Environ-*

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8 Campbell, Dennis, *Environmental Regulation and its Impact on Foreign Investment*, Graham and Trotman, 1992.

Neil Turner BSc (Hons) graduated from the Department of Property and Development Studies at the University of Glamorgan in June 1992 with a First Class Honours Degree in Urban Estate Management. He is now undertaking research into EMS through a project sponsored by BP Chemicals, Barry. Fletcher King, a London based firm of Chartered Surveyors, are collaborating in the research.

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WASTE

RCEP recommendations on waste

In May the influential Royal Commission on Environmental Pollution presented its Seventeenth Report — *Incineration of Waste* — to Parliament. Despite reservations expressed by environmental groups about what they see as the unduly sceptical approach of the Report to recycling, the Government is apparently more enthusiastic. So, the Report is likely to be influential in terms of the development of the UK's strategy on waste and recycling. Here, as a preliminary to a more detailed analysis, we summarize the Report's recommendations:

Recommendation 1: The Department of the Environment should give high priority to completing a national strategy for waste management based on the proposed four-stage decision procedure (see Box 1 below).

Recommendation 2: As part of preparing the national waste management strategy, DoE should press forward with the studies already in hand to establish the best practicable environmental option for particular waste streams.

Recommendation 3: That a levy be applied to all waste deposited in landfill sites.

Recommendation 4: The Government should give targets to waste disposal authorities for the recovery of energy from municipal waste.

Recommendation 5: That the potential for low-grade waste heat recovery should be reviewed, including the circumstances in which it might be economic in the UK without any specific subsidy.

Recommendation 6: That a financial incentive should continue to be available for electricity generated from waste; and that this incentive should be available not only in England and Wales, as is the case with the present Non-Fossil Fuel Obligation, but throughout the UK.

Recommendation 7: That all existing incineration plants be required to meet the new HMIP standards at the earliest opportunity, and in any event by not later than the date of 1 December 1996 given in HMIP's Guidance Notes.

Recommendation 8: HMIP's Guidance Notes should be revised periodically to take account of further information about plant performance.

Recommendation 9: As further evidence about the toxicity of dioxins becomes available, its implications should be kept under continuing surveillance by the Chief Medical Officers.

Recommendation 10: Rather than continuing to include it with other metals, HMIP should set a separate standard for emissions of lead to air from incineration plants.

Recommendation 11: HMIP's standards for emissions to air from combustion processes, particularly those utilizing wastes as fuel, should be re-examined to see whether they ought to be brought more closely into line with the new HMIP standards for incineration processes.

Recommendation 12:

(i) Schemes should be introduced for the recycling of batteries containing mercury or cadmium.

(ii) Studies should be carried out to identify other ways of substantially reducing, and as far as possible eliminating, these metals from municipal waste.

(iii) The case for and against maintaining segregated streams of clinical waste (which may contain heavy metals as well as infectious material) should be investigated in the course of preparing the national waste management strategy.

Box 1. **The Commission's general approach to waste management can be presented as a four-stage decision procedure:**

1st: Wherever possible avoid creating wastes.
2nd: Where wastes are unavoidable recycle them if possible.
3rd: Where wastes cannot be recycled in the form of materials, recover energy from them.
4th: When the foregoing options have been exhausted, utilize the best practicable environmental option to dispose of wastes.

responsibility to lenders and financial institutions as owners of a polluted site. Demands on public money should be minimized, although 'orphan' sites may need to be cleaned at public expense. Compulsory environmental liability insurance is not advocated as a means of paying for clean-up, although the paper supports the creation by firms or industries of voluntary funds to pay for possible liabilities.

How should markets be provided with information?

Registration of contaminated land was dropped because the registers might have been 'misleading' or 'blighting'. Some of the information they would have contained has in any case been collected by local authorities, and it is possible for investigation of a particular site to be carried out on a commercial basis. But the absence of publicly available registers also means that purchasers may buy contaminated land in ignorance, and that small businesses or individuals may find it prohibitively expensive to obtain the information they need. The market alone cannot solve such problems. The Department of the Environment is commissioning research into the information problems presented by dealing in contaminated land. One possible way forward on which views are sought is the waiving of the 'caveat emptor' principle in land transactions, so that the vendor is seen as giving an implied warranty about the state of land sold.

What other roles should public sector bodies have?

Local authorities will continue to be responsible for issues affecting land. It may be that they can use their planning powers to foster clean-up; for instance planning restrictions on greenfield sites might increase demand for 'brownfield' ones and so help to fund clean-up. The Environment Agency may be given the task of formulating a framework of guidance on contamination risks and hence on priorities for clean-up.

Paying for our past is a long and complex document, and extensive public reaction has not yet been forthcoming. The Royal Institution of Chartered Surveyors (RICS) has expressed disappointment that 'the government's recommendations remain so tentative, posing lots of questions but offering few solutions'. In particular, RICS is concerned that the paper does not express further rejection of contaminated land registers, compulsory funding of clean-up (along the lines of Superfund in the USA) and retrospective liability for damage. Financial institutions will probably be equally disappointed by the paper's tentative tone. The Financial Sector Working Group of ACBE stated that 'business would not welcome a fundamental departure from the existing fault-based system'; but the paper canvasses the possibility of widening strict liability. ACBE recommends that 'where the polluter cannot or is not liable to pay, this should be treated as a social cost', i.e. parties with a financial interest should not be made liable; the paper warns that 'limitations to liability', such as secured lender exemptions 'would have to be weighed against the effects on public finance'.

The paper does not signal any rally after the Government's 1993 climb-down on land registration, nor does it suggest a late conversion in favour of EC proposals to extend liability but it suggests that on certain details the Government is more open-minded than its critics might have believed. It will be interesting to see how far the Government finally gives way to protests of the financial sector and the property market.

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Environmental management and environmental requirements of property

Neil J.K. Turner, Ian P. Scott and Stuart A. Gronow

This article outlines the results of a recent survey carried out by Fletcher King (a London-based firm of Chartered Surveyors) and the University of Glamorgan. The work elicited tenant views on the importance they attach to improving their own environmental performance, and examines the potential benefits offered by Environmental Management Systems (EMSs) in the context of property valuation, investment and development. The survey also determines tenant views on the environmental standards now required in the provision of building space.

The environment and property investment

Environmental risk assessment impacts increasingly upon global investment strategies as awareness and liability grow. Property investment will not remain immune, and investors and developers will have to form strategies for dealing with environmental risk.[1] This process will include understanding how occupiers are dealing with environmental issues, and indeed, determine whether tenants consider the issues important. This was the rationale behind the Fletcher King survey which elicited the views of 200 companies in November 1993 (see Box 1).

Tenant environmental performance

Despite the beleaguered state of the economy, particularly at the time the survey was undertaken, occupiers continue to perceive the environment as an important area to understand for their long-term economic success. Occupiers are increasingly incorpo-

Box 1. Questionnaire

Q1 **Does your company consider it important to incorporate environmental criteria into:**

i) Your own business strategy?
Yes - 80%

ii) The marketing of your products/services?
Yes - 70%

Q2 **Has your organization carried out research into improving its environmental performance?**

Yes - 55%

Q3 **Does your organization have an environmental policy statement?**

Yes - 51%

Within 2 Years - 22%

Never will - 27%

Q4 **Are you aware of BS 7750 for Environmental Management Systems?**

Yes - 67%

Q5 **Does your organization have plans to introduce an EMS over the next:**

12 Months - 17.2%

2 Years - 21%

5 Years - 1.3%

Never - 27.5%

Unaware of EMS - 33%

Q6 **What benefits do your organization expect to receive from implementing an EMS?**

Comply with existing legislation - 97%

Prepare for future, tougher legislation - 94%

Satisfy employees' concerns for the environment - 92%

Protection from environmental damage and liability - 88%

Create a competitive advantage - 75%

Attract discerning personnel to company - 55%

Pay lower insurance premiums - 44%

Receive preferential treatment from banks - 23%

Pay a lower rent on the property you occupy - 17%

Q7a **Would a property designed to minimise environmental impact, be an attraction to your organization?**

Yes - 70%

No - 30%

Q7b **Would the environment feature in your list of occupational requirements?**

Yes - 61%

No - 39%

Q8 **Would you be prepared to pay a higher rent for this feature? If yes, by how much?**

Yes - 26%

No - 58%

Undecided - 16%

Those who responded "Yes":

Up to 5% - 80%

6 - 10% - 8%

11 - 20% - 12%

20% + - 0%

Q9 **Please indicate where the "environmental requirement" would rank alongside more traditional occupational requirements by scoring each of the following criteria with marks out of 10.**

Cost in terms of rent - 8.11

Workforce - 7.93

Location - 7.81

Layout of building - 7.74

Building running costs - 7.68

Infrastructure - 7.02

Environmental requirement - 6.91

Q10 **Which environmental characteristics of buildings are most important to your occupational requirements? (Please score from 1 - 5, 5 being most important)**

The inclusion of lower energy lights - 4.36%

The exclusion of environmentally harmful systems - 4.12%

The inclusion of a high insulation rating - 3.87%

The inclusion of off-peak power use - 3.54%

The use of less environmentally damaging building materials - 3.51%

The inclusion of passive heating systems - 3.51%

The inclusion of heat recovery systems - 3.37%

The inclusion of public transport access - 3.17%

The inclusion of solar power "top-up" heating - 2.29%

rating environmental decisions into their mainstream business strategies, and not simply using the environment as a marketing tool. This implies that tenants are beginning to consider the environmental pressures and risks facing them as issues which need to be addressed in a holistic manner, rather than *ad hoc* initiatives which have sometimes characterized environmental improvement in the past. It is also significant that only 13% of respondents thought that environmental issues were unimportant to both business strategy and the marketing of products.

Fifty one percent of those surveyed indicated that they had adopted an Environmental Policy Statement (EPS). Furthermore, of the 49% of companies which did not have an EPS, 44% thought that their company would be introducing one within 2 years. Only 27% of the total population survey thought that their company would never introduce an EPS.

The publicity which BS 7750 had received over the last two years, during its development and pilot programme phase, had obviously been successful in raising awareness within the business community that the standard exists. The company awareness of BS 7750 was 67%. This is attributable to both the importance with which commerce now holds environmental

issues, and the perceived benefits offered by such a system.

The survey also asked those respondents that were aware of BS 7750 whether their company had developed an EMS. Fifteen per cent of the total population survey came from organizations which had developed some form of EMS. Almost 40% of those surveyed came from companies which have plans to introduce an EMS over the next two years. Only 27% stated that they had no intention to ever develop an EMS at any stage. It would appear therefore, that over the next few years a large number of business and industrial occupiers will be developing EMSs.

Perceived benefits of environmental management

One question was specifically aimed at those respondents that have either developed or intend to develop an EMS over the next 2 years (see Fig. 1). The most widely recognized benefit, which 97% of respondents indicated, was that it will allow companies to comply with existing legislation. The second and third most popular perceived benefits were, 'to prepare for future, tougher legislation', and 'satisfy employees' concern for the environment', which scored 94% and 92%, respectively. 88% of respondents came from companies that thought the development of an EMS would offer protection from environmental damage and liability, almost 75% felt that it would create a competitive advantage and 55% indicated that it would attract discerning personnel to their company.

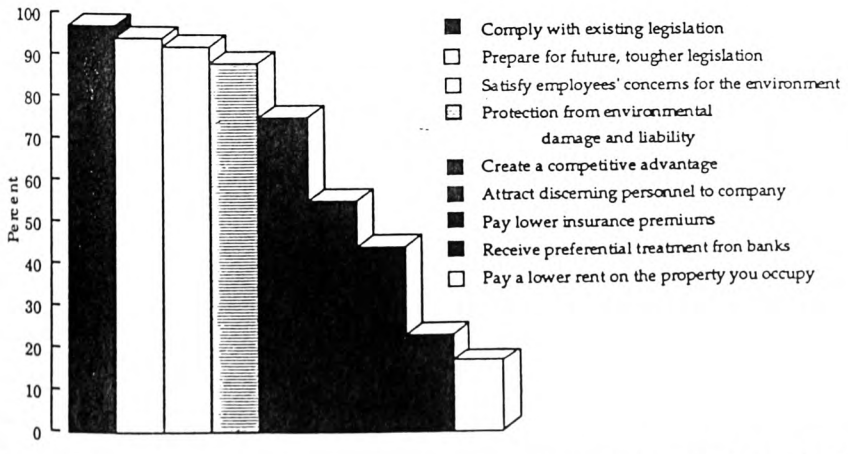

Figure 1. What benefits does your organization expect to receive from implementing an EMS?

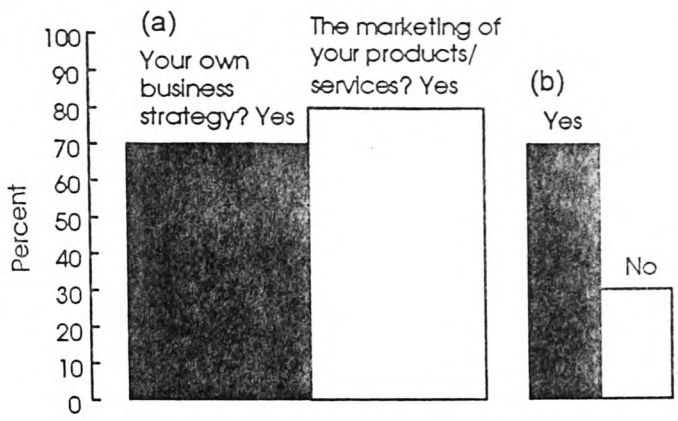

Figure 2. (a) Criteria in which your company could consider it important to incorporate environmental considerations; (b) Would a property designed to minimize environmental impact, be an attraction to your organization?

A survey carried out by the Advisory Committee on Business and the Environment (ACBE) demonstrated that 40% of those companies which had invested in environmental initiatives believed that they enjoyed better relations with their stakeholders, 'which frequently resulted in an enhanced ability to do business in ways such as lower insurance premiums (and) lower interest rates on loans'.[2] The ACBE survey and the results of this work shows that many companies now perceive that there are commercial benefits to be derived from enhanced environmental performance.

Green buildings

Seventy percent of occupiers indicated that they would be attracted to a property which had been designed to minimize environmental impact (Fig. 2). Perhaps of even greater interest is that over 61% of respondents would include 'environmental criteria' in their list of occupational requirements. It is apparent therefore that a great deal of interest in green buildings exists.

In addition the results indicate that just over a quarter of respondents would also be prepared to pay a higher rent in order to occupy a building which is environmentally superior (Fig. 3a). 80% of those who were prepared to pay more in rent stated that this increment would be between 0–5%. 8% and 12% stated that they would be prepared to pay between 6–11% and 11–20% more, respectively, (Fig. 3b). It is important to stress that these percentages are of the 80% which answered positively to question 9, however, given the economic background at the time of this survey these results are extremely strong evidence for the marketability of buildings with a better environmental performance.

The environmental characteristics most important to occupiers were those which delivered reduced building running costs. This could help explain the relatively high percentage of occupiers prepared to pay more rent for a less environmentally damaging building. If environmental improvements help reduce costs, then perhaps it is not so surprising that some tenants will be prepared more for this benefit.

Not surprisingly the environment is ranked below more established occupier requirements in importance. However, the extent to which these traditional requirements are considered to be more important than the environment is not particularly significant. Up until a few years ago the green requirements of occupiers were non-existent, and the dramatic increase in awareness reflected in this survey, supports the view that, 'The *greening* of buildings ... is likely to become more important to investors, develop-

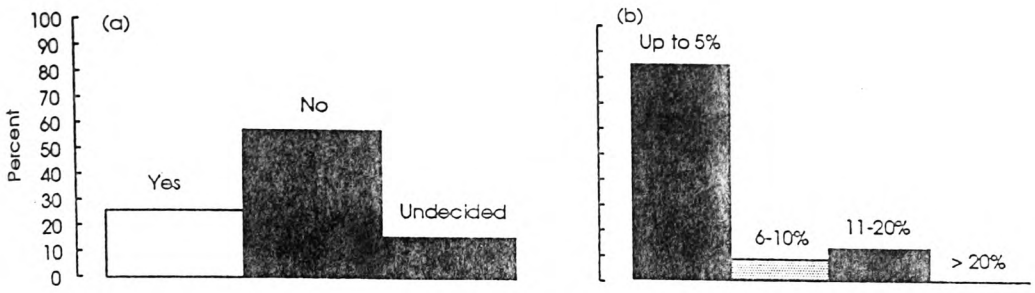

Figure 3 (a) Would you be prepared to pay a higher rent for this feature? (b) Those who responded 'Yes'. If so by how much?

ers, building managers and, of course, to the occupiers themselves.[3]

Conclusions

If, as many companies interviewed believe, an enhanced environmental performance can lead to improvements in competitiveness, then property valuation should begin to reflect this. Tenants who have developed EMSs offer the property investor enhanced income security, with less risk of environmental incidents occurring. Since there '... is considerable doubt as to whether existing standard commercial leases adequately protect the landlord ... in respect of liability for contamination – past, present and future',[4] investors, valuers and managers of property should be very interested in the environmental management practices of their tenants. This is not happening in the property market at the moment, but perhaps we should not be too surprised that a failure in the pricing mechanism has resulted from overlooking environmental issues.

The results also suggest that there is demand for green buildings and therefore even if tenants were not prepared to pay a premium for such property it seems likely that these buildings would find tenants easier and quicker, all else being equal. It could also be argued that the type of tenant attracted would be one who was attempting to manage their environmental impacts. In the light of the strict liability laws being developed in the UK and EC, a landlord overseeing tenants who are making attempts to minimize environmental impacts will be less likely to have to pay for an environmental clean-up.

Combined with future research these results will allow investors and developers to produce strategies involving buying and building greener buildings occupied by greener tenants. The work will allow the property profession to: provide the product required and benefit from it financially, whilst improving its own environmental performance and contributing in that way to the concept of sustainable development.

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Neil Turner is undertaking research into Environmental Management Systems and their potential impact upon property investment and valuation in decision making. The research is to be presented for a Doctor of Philosophy Degree in 1995. Dr Ian Scott is Associate Director in charge of Research at Fletcher King Plc. He is an advisor to the research, and Fletcher King are a collaborating body and sponsor. Stuart Gronow is Reader and Research Co-ordinator in the Department of Property and Development Studies, The University of Glamorgan and acts as the Director of Studies to the research. Neil Turner is based at the Centre for Research in the Built Environment, University of Glamorgan, Pontypridd, Mid Glamorgan CF37 1DL.

TRANSPORT

Green bench marking in the road transport industry

Frank Worsford

This article assesses the tough environmental standards of four of Britain's top transport providers.

Four companies – BOC Distribution, Exel Logistics, TNT Express and Transport Development Group – have set standards for the road transport industry (see individual boxes overleaf).

They are major owners and users of resources. TDG operates from more than 200 distribution sites and devotes more than 4000 person days to driver training each year. BOC Distribution owns more than 1000 vehicles & trailers, and they travel over 60 million miles a year. Exel Logistics employs almost 15 000 staff and spends more than £20 million a year on fuel. TNT Express owns more than 3000 vehicles & trailers and uses 50 million litres of fuel a year. Such big money and staggering figures mean that any environmental improvements made, however small, can have significant benefits.

THE USE OF ENVIRONMENTAL MANAGEMENT SYSTEMS IN THE CHOICE OF BUILDING MATERIALS

Neil Turner and Peter Hibberd
University of Glamorgan

This article outlines the inherent difficulties involved in minimising the environmental impact of building materials. Firstly, the management structure of building procurement does not readily lend itself to Environmental Management since, without specific contractual obligations in place, the client will frequently be unaware of the materials which have been used to construct the building, let alone the environmental impact of the selection made. Furthermore, the subjective nature of assessing the environmental impacts of known building materials exacerbates the problem. A project sponsored by BP Chemicals (University Environmental Management Programme, 1993)[1] has outlined the procedures followed by the University of Glamorgan in the construction of its buildings. This article is based on the study's findings and suggests ways in which the procurement process can be altered to create an awareness of the environmental impact of building construction and to reduce such impact.

INTRODUCTION

This article is concerned with the selection of building materials in order to minimise the environmental impact of new and existing buildings. The authors are also concerned with how the selection process is affected by the procurement approach. The concept of 'environmental architecture' which would involve considering the location of the building, its visual impacts, the amount of energy expended by those visiting or working in the building and much more besides, goes far beyond the scope of this article.

Understanding, and indeed managing, the interaction between the built and natural environment is crucial in our attempt to achieve a more sustainable future. About 50 per cent of the energy used in the UK is related to building activity or use, and half the UK CO2 emissions are also produced by the UK construction industry (CIRIA, 1992). Other impacts of the built form are related to CFC and HCFC usage, tropical hardwoods, the effect on local wind climates and massive natural resource use (for example, some 300 million tonnes of aggregates, sand and gravel were used in 1990 alone (CIRIA, 1992)).

MANAGEMENT STRUCTURE OF BUILDING WORK AT THE UNIVERSITY OF GLAMORGAN

The following outlines the management structure controlling building work undertaken at the University of Glamorgan.

1. Senior Management Team.

This comprises of the Client Department, the Head of Administrative Services, and the Property Maintenance Officer. It is responsible for establishing that Building Work needs to be carried out. For example, it may be that Student Services (Client Department) feel that more halls of residence are required. The Senior Management Team will discuss the necessary requirements of the building, for example, the number of bed spaces which need to be provided in a hall of residence, type of heating required and the costing of the work in approximate terms.

2. Estates Committee.

This Committee is a sub-committee of the full Board of Governors of the University of Glamorgan. It will listen to the proposals put forward by the Senior Management Team and then either approve them (within their powers) or recommend the proposals to the full Board for consideration, or reject them.

3. Board of Governors.

The Board will either confirm the proposals put forward, modify them due to financial constraints or reject the proposals. Without this authorisation new building work cannot begin.

4. Project Team.

This comprises of the Client Department, the Head of Administrative Services, Property Maintenance Officer and User Requirement representatives. This team will agree the scheme in more detail, whilst at the same time keeping to the agreed limits set by the Board of Governors. The Property Maintenance Officer will provide technical support, such as roof specification or double glazing requirements. The Client Department suggests what the building should contain, for example, the type of security system they would

e to see in operation. The user requirements will be taken o account by seeking the views of potential users.

hen all the relevant information has been collated it will rm the basis of the remit which will be given to the ternal consultants who could be, *inter alia*, a design and ild contractor. The selected consultants will normally be ppointed as the Employer's Agents from the pre-contract ge onwards, but much depends on the adopted ocurement route as to the precise remit of the employer's ent.

The contractor will have responsibility to undertake the ilding work in the form outlined, but again the actual role ill be determined by the contractual relationship created. he contractor may be required to follow a specification tailed by others and will have little choice as to the nature f the materials. However, the contractor may also be the ecifier of materials in an attempt to satisfy a performance ecification. Therefore, it can be seen that the contractor s varying degrees of freedom to specify materials. Even here a limited ability to specify exists the contractor enerally has a wide discretion as to which suppliers he es, and therefore where the building materials are rchased.

These procurement approaches to construction are fairly mmon and take little or no account of the environmental pact of specifying the materials. If environmental rformance is to be improved, for example, by the iversity implementing an Environmental Management stem (EMS), changes will obviously have to be made. here is a need within BS7750 (British Standards Institution, 992) to establish, register, monitor and continuously prove environmental impacts.

Nevertheless, it is recognised that the building industry is toriously difficult to regulate in terms of where products me from, especially where no formal policy is in place to tempt to establish this information. The buying process of ese materials differs radically from the standard practices f the purchasing department at the University, where the ppliers can be more closely monitored since the rchasing Manager can be in direct contact with the pplier if he so wishes. This is made easier because of the mited number of items to be purchased. No such rangement would be possible for building works where the operty Maintenance Officer will be in contact with xternal consultants who, in turn, will communicate with the ntractor responsible for the purchasing of materials from e suppliers. The supplier will only rarely be the anufacturer.

UBJECTIVITY AND SCOPING

n an ideal world, the University would be aware of all the aterials which are used in the construction of its buildings, owever, this would present problems in itself.

Firstly, how far down the supply chain does an nvironmental assessment of a building material go? The full fe cycle analysis is very difficult to undertake properly, and equires a huge amount of time and resources. For example, oncrete is a common building material which obviously involves sand being mixed with cement and water. The sand used in South Wales is often obtained from dredging the Bristol Channel, which in turn keeps the waterway clear for commercial shipping. This activity has a myriad of associated environmental impacts, which would have to be considered in the full life cycle analysis of concrete as a building material.

Secondly, what evaluation techniques are used, and can they realistically refute their main criticism, that is their subjectivity? Again an example can be used to illustrate the point. Building materials could perhaps be obtained from a local quarry, which is a finite resource. Alternatively, it could be argued that a man-made material should be used instead. Deciding which material has the least impact on the environment must involve a subjective assessment of the loss of a finite resource and associated impacts, and the energy use and transportation impacts involved in obtaining the man-made equivalent and delivering it to the University campus.

It should be pointed out, however, that great steps have been made in this area in the last few years to facilitate the task of life cycle analysis for building materials. The Green Construction Handbook (JT Design, 1993) identifies the environmental impact of the full range of materials used in constructing buildings. It is based on a life cycle analysis approach, including the raw material extraction, manufacture and associated energy requirements, pollution caused by the manufacturing process and in use assessments and recyclability of products. However, the J T Design team which produced the guide have acknowledged the difficulties associated with its development:

> *'The great stumbling block has been a lack of easily accessible hard information on which to base "green" decisions'* (Needs, 1993).

THE WAY FORWARD

The remainder of the article will highlight how the management structure of the building process can be improved as a complimentary development to such guides. This is centred around the building contractor and the discretion which is afforded to him to select and purchase building materials.

A building contractor has a wide scope of choice in the selection of building materials within the different procurement processes and contractual arrangements. Where a contractor is afforded a great deal of discretion in the selection of the materials which are used to construct buildings, the relative importance of environmental management practices will increase.

Alternatively, where the contractor has been restricted in material selection, environmental management, on the part of the contractor, is less important. The design and build approach will provide the contractor with a relative 'free hand' in the selection and purchase of building materials. The client, or employers agent, will usually determine a performance specification, leaving material selection to the contractor, and, assuming the contractor's choice satisfies these requirements, the client will be provided with a

building which performs to the stated criteria.

The traditional approach is at the other end of the scale, in terms of the choice the contractor enjoys in selecting materials. In this situation the contractor will have much less choice in the selection of materials, as more detailed specifications have usually been made by the design team. However, a choice of supplier is generally still available. It should be apparent that the importance of the environmental performance of the contractor depends on which procurement process is employed. If the client is serious about using building materials which minimise environmental impacts, and the design and build approach adopted, then it is paramount that the environmental credentials of the contractor are known. Remembering that the contractor is relatively free to choose the materials to be used, the client is to some extent at the mercy of the contractor to select the best environmental option.

One way of ensuring this is to select a contractor that can demonstrate environmental management practices, preferably demonstrating a commitment to BS7750 or the EU eco-management and audit scheme (EC 1993). Both of these systems require a company to be aware of their environmental impacts, and introduce training programmes to ensure that these impacts are reduced on a year by year basis.

It is hard to see how a contractor could comply with these requirements without having procedures in place allowing for the selection of less environmentally damaging building materials. It is possible for material selection constraints to be introduced into a design and build brief but as material selection is classed as design, it does start to impinge upon the concept of design and build.

Turning to the traditional approach, it is sensible to suggest that the demonstration of environmental management techniques by the contractor is of less importance. This is due to the greater control that the method bestows on the client or employers agent in the selection of specific materials. A detailed specification is prepared and its use involves executive control being written into the building contract to allow the client to demand that certain building materials are used while he/she avoids others.

It is clear that the responsibility for ensuring appropriate specification is left with the client or employers agent. It is a very pro-active management technique, which may be expensive for the client since personnel would have to be trained, or very specialist staff would have to be employed as agents.

THE FUTURE

The management structure for performing building works does not, at present, take much account of providing the client with knowledge concerning the materials used to construct buildings. Without this information, environmental management is not possible. Companies which are intending to improve their environmental performance are increasingly turning to the EMS concept, whether this be BS7750 or EMAS based. Both require that environmental impacts are assessed, recorded, monitored and continuously improved, and the standard management structure for building procurement does not provide for this.

The design and build process can be modified by engaging and requiring a contractor to inform the client of the materials that are to be used and supply the accompanying environmental information. In order to be able to do this the contractor must have some kind of EMS in place. This will allow the client to begin to identify and manage environmental impacts, and which will help the process of developing its own EMS.

In theory the traditional approach, when employing an environment conscious architect, is perhaps more likely to provide the client with the information needed to identify and manage environmental impacts. This may occur as an architect acting in this capacity is less constrained by price and the issues can be more readily referred to the client for discussion. This could, however, be an expensive option.

The problem of subjectivity in assessing environmental impacts will of course remain, but guides such as J T Design's, and the Building Research Establishment's Environmental Assessment Method (1990), increase the chances of real improvements being made in this direction. In the immediate future improvements made to the building management process will certainly encourage and help clients to improve their own environmental performance.

CONCLUSION

Until the client becomes aware of which building materials are being supplied, and by whom, any attempt to assess, monitor and improve the environmental performance of buildings will be futile. In order for the client to have knowledge of the materials, there is a need for fundamental change to the management structure of building procurement, and a need for the clients involvement in the process. The use of contracts, for both contractors and consultants, with a greater emphasis on environmental issues, is also crucial to this process. Other points to consider include:

1. It is important to consider the environmental performance of the contractor, the procurement process adopted will have some influence here;
2. The initial stages of improving the environmental performance of all practices, not just construction, are often the most difficult. It is therefore important not to try to do everything at once, start by asking simple questions of contractors or manufacturers.
3. Improving the environmental performance of constructing buildings through the traditional approach will require greater input from the client's design team who will need specialist knowledge. This may lend itself to certain types of organisation who may already have qualified staff.

NOTES

1. The BP study ran for a period of 12 months from November 1992. The research had two main aims;

1) to investigate the concept of environmental management systems; and 2) to determine the applicability of the EMS concept the University of Glamorgan by undertaking a review of some of the institution's practices. The construction of the University's buildings was an area which was investigated, along with the use of energy, the purchasing of goods and services and the physical environment surrounding the campus. The report was submitted to the Vice Chancellor and the Board of Directors of the University, who are now in the process of deciding the next steps which environmental management will take on campus.

SUMMARY OF AN EMS AND ITS RELATIONSHIP WITH THE PROCUREMENT PROCESS OF BUILDING MATERIALS

nitial Review	Establish how you currently procure building work?
Policy	Recognise in the policy statement that buildings, and the materials used in their construction, have a significant environmental impact.
Organisation and Responsibilities	Personnel responsible for overseeing construction must have their environmental duties made clear. Identify any training needs.
Register of Regulations	Which legislative and regulatory requirements are relevant to the construction process?
Evaluation and register of effects	Obtain information on the environmental impacts of materials used. Compile a register of the most significant.
Objectives and targets	Attempt to set targets for the reduction or removal of some of the more harmful materials identified in the environmental effects register.
Management Programme	Outline the responsibilities for achieving the objectives and targets, and how they are to be achieved. This should indicate exactly what is expected of architects, contractors, and suppliers.
Management Manual	Written documentation illustrating that the relevant personnel responsible for procuring and constructing the building are aware of their duties.
Operational Control	Ensure that feedback is allowed to take place between contractors and client. This should allow the client to determine whether procedures are effectively undertaken.
Records	Maintain records to demonstrate whether or not the procurement process has achieved the desired objectives.
Audits	Check with the records to determine whether the EMS is fulfilling it objectives. Has there been a reduction in certain building materials, have environmental impacts been reduced?
Review	Is one procurement approach more suitable than another?

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SURVEY: Occupiers will pay more for green buildings

Building users are far more sensitive to environmental issues than the property industry suspects, according to the results of a major new survey

One in four companies would pay a higher rent for a building which addressed environmental concerns.

This startling statistic is just one of the results from a new survey which examines corporate attitudes to the environmental issues affecting commercial property.

The survey, conducted by *Property Week*, Fletcher King and the University of Glamorgan, suggests that property occupiers take green issues more seriously than developers or agents do, and can derive corporate benefits from environmental awareness.

The researchers had expected the 200 large firms contacted to give the politically correct pro-environment response to questions, but they had not bargained for such a high proportion backing their views with a financial commitment.

For example, it came as no surprise that 70 per cent of the sample said a property designed to minimise environmental impact would be attractive to their company. However, few could have expected that 26 per cent would be prepared to pay a higher rent for such a building - especially when most large firms see property as an overhead which needs to be reduced.

The premium they would be happy to pay would not be that great. Four out of five companies who would pay more for a green building would not spend more than 5 per cent extra.

Environmental factors now play an important part in firms' forward planning. More than 60 per cent of those interviewed said future occupational requirements would now include environmental criteria.

However, it would be wrong to call this new awareness a revolution. When asked to rank green issues against more traditional occupational criteria, our sample put them behind factors like rent, workforce, location and building layout (*see graph opposite*). The environment was not that far behind infrastructure in importance.

The overall ranking is also significant because it puts rent at the top of the list, with location pushed to third place behind workforce considerations. Our sample saw property as first and foremost a cost.

The research looked at which environmental characteristics were most important to occupiers (*see graph opposite*). Measures to reduce building costs, such as low-energy lights, a high insulation rating and the ability to use off-peak power, all featured strongly. This perhaps explains the large percentage of occupiers prepared to pay higher rents for green buildings - they expect their investment to save them money in the long run.

(*See also case study on page 24.*)

ENVIRONMENT: Corporate attitudes

Q. Does your company consider it important to incorporate environment criteria into:

(i) Your own business strategy?

Yes - 80 per cent

(ii) The marketing of your products/services?

Yes - 70 per cent

The common assumption is that businesses still use environmental ideas as marketing tools with little genuine conviction behind their application. Answers to this question suggest times have changed. More companies were incorporating environmental decisions into their mainstream business strategies than were using it in marketing.

Q. Has your organisation carried out research into improving its environmental performance?

Yes - 55 per cent

Q. Does your organisation have an environmental policy statement?

Yes - 51 per cent
Within two years - 23 per cent
Never will - 27 per cent

Q. Are you aware of BS7750 for Environmental Management Systems?

Yes - 67 per cent

BS7750 does for environmental management systems what BS5750 does for quality management systems.

The EMS should allow a company to set environmental objectives and provide the means to meet them. Like BS5750 it does not set specific performance criteria but provides a model on which companies can base their bid to improve environmental standards.

Q. Has your company developed an EMS?

Yes - 15 per cent
Within two years - 40 per cent
Within five years - 18 per cent
Never - 27 per cent

Considering the final version of BS7750 has only just appeared, the level of awareness of EMS is extremely high. Our researchers were surprised that 15 per cent have already developed systems.

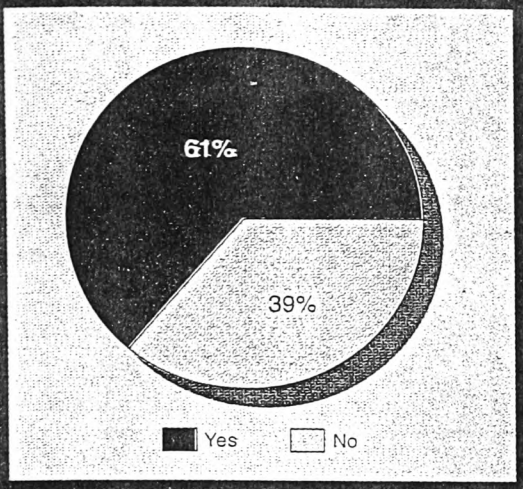
Q. What benefit does your organisation expect to receive from implementing an EMS? It would:

Allow the company to comply with exsisting legisiation - *97 per cent*
Allow the company to prepare for tougher legislation - *94 per cent*
Satisfy employees' concern for the environment - *92 per cent*
Offer protection from environmental damage and liability - *88 per cent*
Create competitive advantage - *75 per cent*
Attract discerning personnel to the company - *55 per cent*

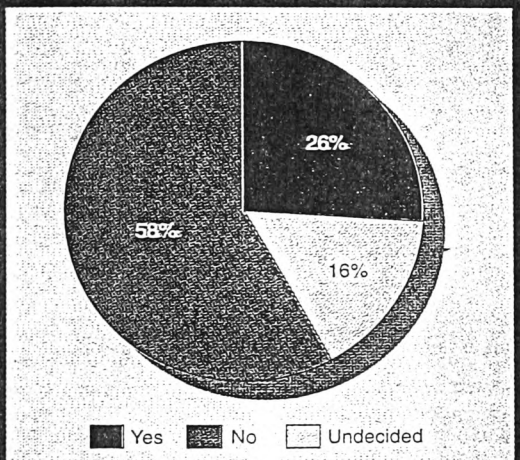
These answers suggest occupiers view environmental issues as a threat rather than an opportunity. Positive advantages such as the creation of competitive advantage were well behind moves to cover corporate backs on legislation.

The environment and property

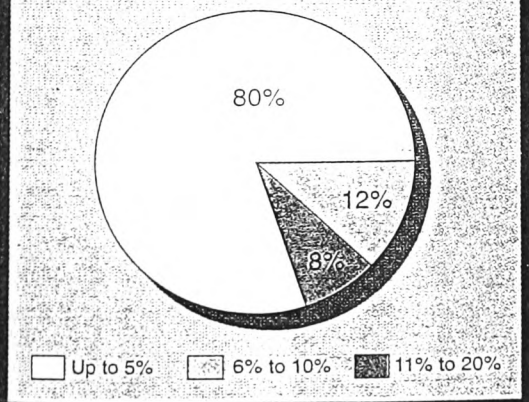
Would the environment feature in your list of occupational requirements?



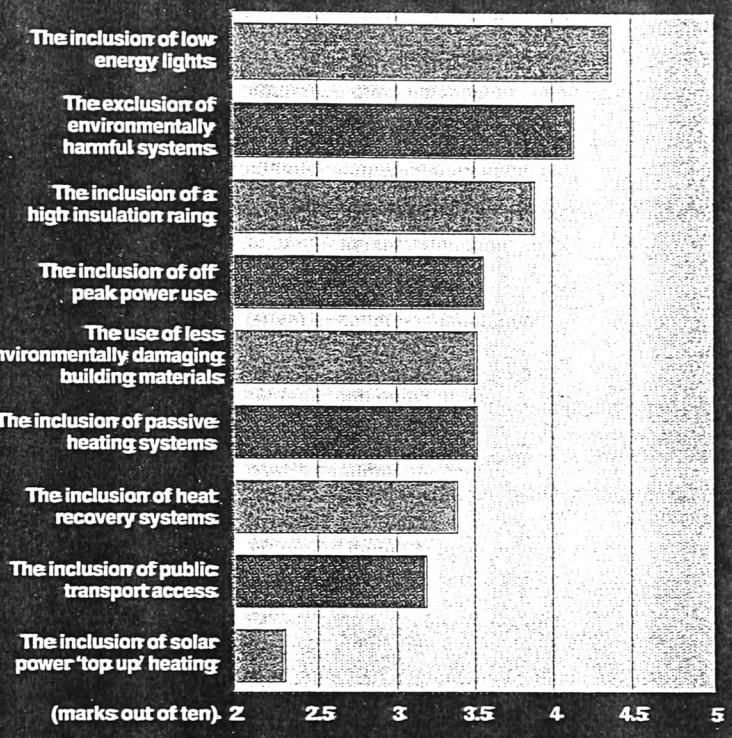
Would you be prepared to pay a higher rent for a property designed to minimise environmental impact?



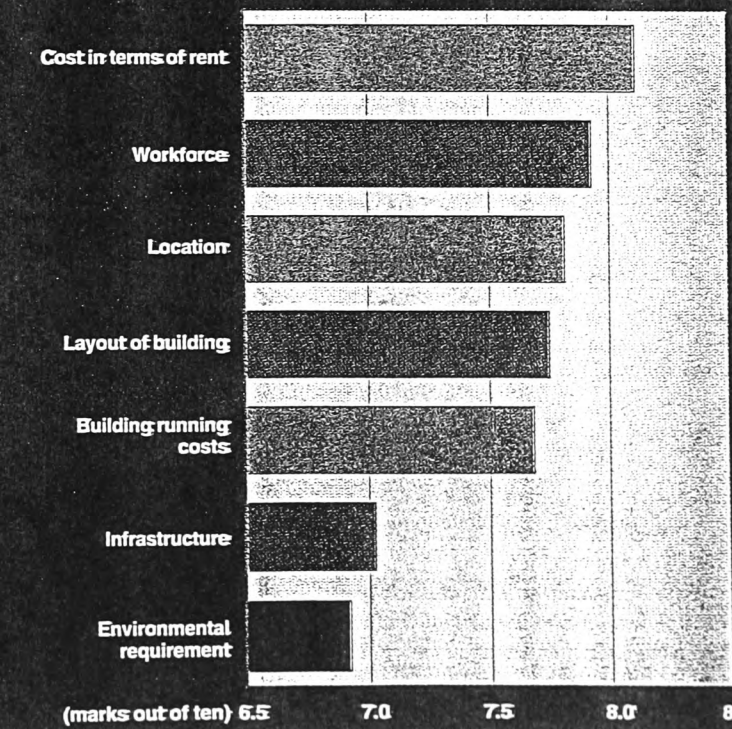
If yes, how much more?



Which environmental characteristics of buildings are most important to your occupational requirements?

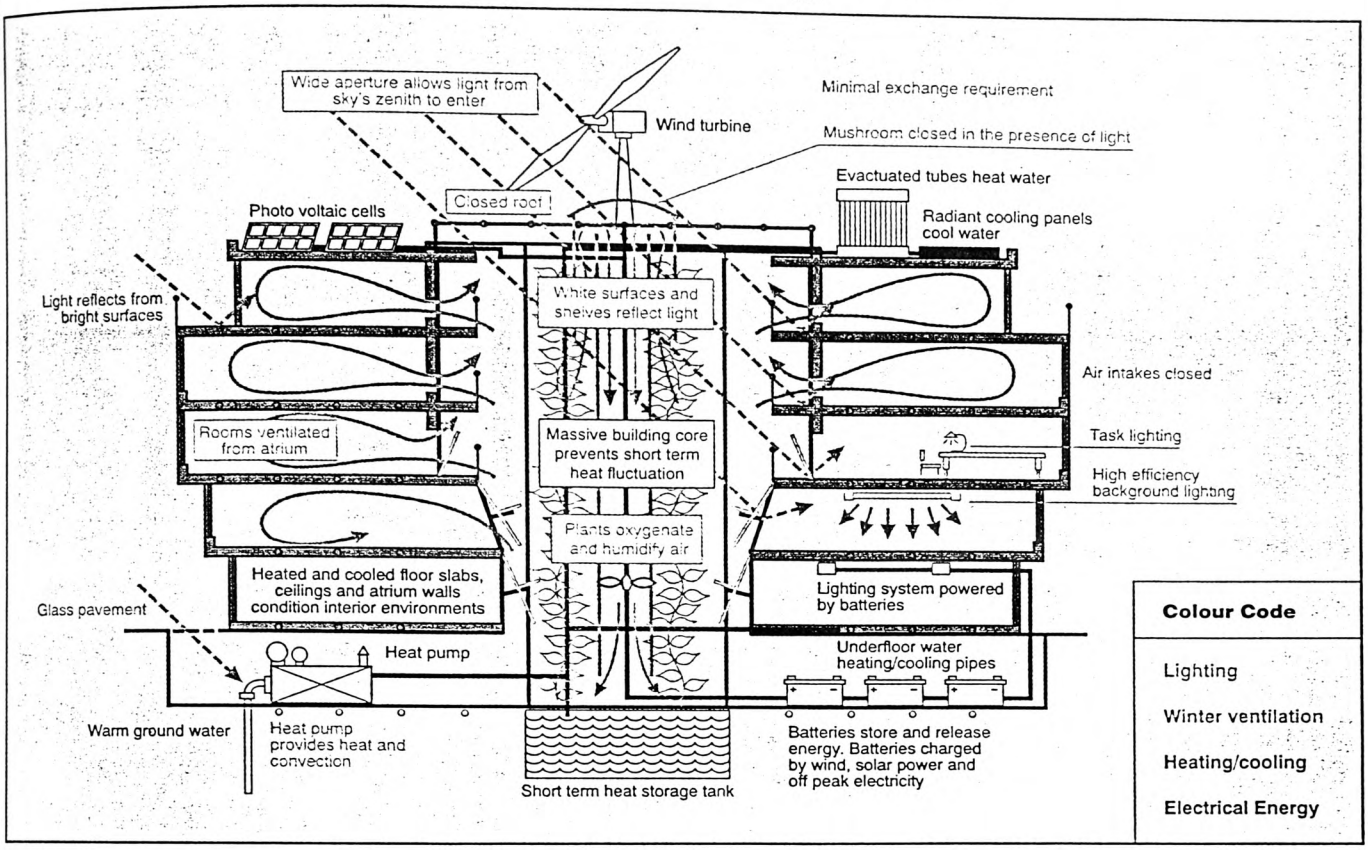


Where does your environmental requirement rank alongside more traditional occupational criteria?



PROPERTY DECISION-MAKERS FROM 200 LARGE OCCUPIERS WERE QUESTIONED FOR THE SURVEY. THEIR NAMES WERE SELECTED AT RANDOM FROM *PROPERTY WEEK'S* OCCUPIER READERSHIP LIST. ANALYSIS OF THE RESULTS WAS CARRIED OUT BY NEIL TURNER OF THE UNIVERSITY OF GLAMORGAN (TEL: 0443 482121) AND IAN SCOTT OF FLETCHER KING (TEL: 071-493 8400)

CASE STUDY: The Green Building, Dublin



A diagrammatic representation of how The Green Building, by developer Temple Bar Properties, will be more environmentally friendly

Occupiers who are looking for buildings designed with genuine environmental benefits in mind still have a limited choice. Gradually, however, developers are beginning to see advantages in using green issues as a starting point for their plans and not just a bolt-on extra.

One example is the Green Building nearing completion in Dublin's Temple Bar area.

Developer Temple Bar Properties set out to achieve high standards of energy efficiency while keeping construction costs to £120 a sq ft, near the norm for high-quality Dublin offices.

With the project nearing completion Temple Bar claims the 14 750 sq ft of offices will use 81 per cent less energy than equivalent conventional buildings and emit 64 per cent less CO_2. The company says this amounts to a saving of £1 a sq ft a year - an amount which, it believes, will win it either a premium rent or a quick letting.

The asking rent is £25 a sq ft and agents Jones Lang Wootton in Dublin say negotiations to let the whole building to one company are nearing completion. The tenant is expected to move in during July.

How does the building achieve such high energy savings?

- It has a high thermal mass, which allows it to store energy easily. The fabric of the building is encased in an insulated cover which opens automatically during mild weather.
- It uses natural ventilation which draws air through the basement. The developer claims the atrium includes selected plants in enough volume to filter the air and raise the oxygen content.
- The central atrium provides good levels of natural lighting deep inside the building. The roof opens and closes depending on the weather. In dry and hot conditions it opens completely, turning the atrium into an open courtyard.
- A heat pump retrieves heat from the bedrock beneath the building. This is stored in a large hot water tank and used to heat the building via pipes in the floors.
- Roof-mounted solar cells and a wind generator are used to power lead-acid batteries that in turn provide electricity for the artificial lighting systems.
- Windows are designed to cover 30 per cent of the wall area. The developer says this produces the most efficient balance between providing enough natural light and minimising heat loss.

The construction of the building made use of some recycled materials - mainly bricks. The developer also had a policy to use very little steel and aluminium because of the large amount of energy involved in its manufacture. The paint used was organic.

Once in use the building will collect rain water to supplement the mains supplies.

Such a host of environmentally-conscious features are rare in a building, so how did Temple Bar manage to achieve it while maintaining conventional building costs?

The truthful answer is, they didn't. Around £500 000 of the £1.8 million construction costs came from an EC grant under the Thermie environmental programme.

For the moment it appears that developers who aim to create buildings which solve environmental problems need to rely on outside help to make their developments commercially viable.

How green is my tenant?

Following Peter Moss's article in the September Journal on the impact of environmental issues on values, Neil Turner, Stuart Gronow and Gwyn Prescott consider another issue for valuers - the environmental performance of the tenant

Due to a profusion of environmental risks and pressures the environmental performance of a tenant occupying commercial or industrial premises is now a factor a valuer should take into account when determining the open market value of such properties.

Addressing the environmental concerns of interested parties, such as customers, bankers, investors and regulators, will increasingly influence a tenant's ability to survive in the very competitive, and environmentally aware 1990s. This has obvious repercussions for the security of income provided by a property.

Of more immediate concern however, is the potential environmental damage a tenant can cause to the landlord's property, neighbouring land and the environment in general. Under certain circumstances this could result in heavy fines and penalties for the landlord, possibly wiping out the value of his asset.

Valuers should thus be aware of the environmental management practices adopted by a tenant when determining the open market value of occupied property.

Environmental Risks and Pressures

There are many and varied environmental risks which now face the occupiers of industrial and commercial property in the UK. Failure to formulate an appropriate response to these issues could jeopardise the long term corporate future of a tenant's business and also lead to liability for environmental damage for both the tenant and the landlord.

These environmental pressures do not necessarily emanate from the traditional, ideological enemies of business. Many of the corporate pressures come from important stakeholders and it is vital that their concerns and requirements are met. The comprehensive environmental legislation which has been developed at UK and EC level, combined with traditional pressure groups and contemporary stakeholder concerns, present a powerful coalition for corporate change. Valuers should be aware of these issues when considering the open market value (OMV) of an occupied property.

Strength of tenant covenant

A tenant's response to these environmental risks and pressures could have a direct bearing on its future economic performance. Many different stakeholders including, employees, customers, competitors, banks, insurance companies, regulators and the public at large are all demanding that certain environmental standards are met. The ability of a company to respond to these new pressures will be linked to company success and failure in the 1990s. This has led the World Industry Council for the Environment (WICE) to conclude that 'Companies which can combine environmental performance with good business should flourish.' (Chase 1993).

Whilst the valuation profession is dealing with the intricacies of contaminated land '...the possible future need for more detailed and pro-active management of tenanted property which is presently clean should not be overlooked..' (Moss, P. 1993). The environmental performance of the occupying tenant will need to be considered by those offering valuation advice of landed property. Apart from the fact that the environmental performance of a tenant could impact upon its economic performance, and thus influence security of income and therefore, property valuation, there is a more immediate concern for the practising valuer.

Liability for environmental damage

Various existing and proposed UK and EC legislation will mean that those responsible for causing environmental damage will be held liable and forced to clean up any pollution they cause. Figure one outlines some of these legislative developments.

It is important to dispel a popular misconception concerning properties which have the potential to pollute. They are not confined to heavy industrial and chemical works: '.. a Class B1 business use permits the carrying on of industrial processes which could have significantly polluting effects.' (Symes 1993). The types of environmental risks and pressures identified in figure one, attach themselves to properties which make up a significant part of the property market, on which valuers offer advice on a daily basis.

ENVIRONMENTAL RISKS

Section 33 (1) (c) 1990 makes it a criminal offence to treat, keep or dispose of controlled waste in a manner likely to either cause pollution of the environment or damage human health. Under Section 73 (b) of the EPA any Person who is convicted under Section 33 is strictly liable for any damage caused to a third party,

Section 34 of EPA 1990 introduces a statutory duty of care to any Person who imports, produces, carries, keeps, treats or disposes of waste. Failure to discharge this duty of care will give rise to civil proceedings. This could also lead to an unlimited fine in the Crown Court. Section 79 of The EPA empowers Local Authorities to prevent nuisances occurring on land or to prevent or restrict nuisance. The Local Authority may recover expenses reasonably incurred in abating or preventing the recurrence of the nuisance.

Under Section 85 of The Water Resources Act 1991 it is an offence to cause or knowingly permit the entry of any poisonous, noxious or polluting matter or any trade effluent into controlled waters unless the discharge is within the terms of a consent document issued by the National Rivers Authority (NRA).

Section 161 of the Water Resources Act 1991 empowers the NRA to prevent pollution of surface or ground waters, or to take remedial steps where pollution has already occurred. The Authority can then recover the expenses incurred from any Person who either caused or knowingly permitted the polluting substance to be present.

Cambridge Water Company V. Eastern Counties Leather Plc, (Court of Appeal, 1992)

The case involved the pollution of groundwater by a tannery, (ECL). The Plaintiff, a Statutory Water Company, extracted water from a borehole and had done since 1976 when it purchased the site, and at which point in time the water was deemed to be wholesome. However, due to the imposition of EC drinking water standards, the water became unusable.

It was found that ECL had contaminated the groundwater through accidental chemical spillages which had occurred some 15 years earlier. Consequently, the Court of Appeal found ECL liable for The Water Company's loss in nuisance. (The pollution had interfered with the Company's natural right to draw water from its own premises).

It was made clear that no fault was attached to ECL for the spillages, and that the consequences of them could not have been reasonably foreseen. The decision has, therefore, introduced the spectre of strict, no fault based retroactive liability for

ronmental damage. It should be highlighted this case was due to be heard in The House ords in October/November 1993.

Directive Civil Liability for Damage to the ironmental caused by Waste. If adopted this ld result in no fault, civil liability for damage sed by waste to persons and property, and the impairment of the environment.

reen Paper: Civil Liabilily for Environmental nage. This proposes strict, no fault based ility for environmental damage in general.

atutory liability for environmental damage is shable by ever increasing fines and prison ences. This could seriously undermine the nt's economic performance and thus his ability ay in business and pay a rent to a landlord. e fact that liability can attach to **owners** and upiers of land, means that a landlord could be liable for environmental damage under certain umstances.

e landlord's situation is exacerbated when the elopment of EC environmental legislation is sidered. The proposed Civil Liability for age to the Environment caused by Waste ctive, and the civil liability for environmental age Green Paper, are of particular concern. anxiety centres on the definition of 'polluter', h, as with much modern environmental slation, seems to be very broad.

is trend, to widen the definition of the luter", in the polluter pays principle, could er useless, lease clauses aimed at minimising landlord's risk to environmental liability. The of fines and 'clean ups' could, and does, run millions of pounds. A lease clause outlining any environmental damage caused by a tenant be the responsibility of that tenant to clean up, little use if the business has gone into idation. Ownership is obviously unaffected and er EC, UK and indeed common law, the lord will be liable for the damage. Since rance against environmental liability is either costly or unobtainable, certain stakeholders investigating the environmental management niques of tenants, and using this as a kind of si insurance against such an occurrence.

he response of the banking industry to these es has been to introduce lending policies which '... now designed to reflect the potential nage a customer's business might do to the ironment ...' (National Westminster Bank, 92). The way companies deal with these new ssures '... will impact upon the cost of money to siness... as banks and other stakeholders ppraise their position.' (Thompson, 1992). deed evidence of this is already presenting lf; a study undertaken by the DoE found that, environmental programmes...frequently lted in an enhanced ability to do business in s such as ...lower interest rates on loans...' dvisory Committee on Business and the Environment, 1992).

Here the company that has sound environmental procedures in place may find borrowing from the bank easier, and may obtain finance at preferential rates. This will happen not only because financial institutions wish to be seen claiming the moral high ground. They too are beginning to recognise that sound environmental management usually means good business management.

Environmental management systems

If the performance of a tenant is becoming increasingly important to the security of a landlord's proprietary interest, valuers at the very least should become familiar with the concept of environmental management and understand the potential benefits an environmental management system (EMS) can bestow on both the tenant and the landlord.

An EMS is a management tool which allows an organisation to establish procedures to set environmental objectives and provides the means by which to achieve compliance with these objectives. It does not set environmental performance criteria, but provides a model on which organisations can base their policies and objectives which will, in turn, continuously improve their environmental standing. The British Standard, BS 7750, provides the framework which will allow an organisation to develop an EMS. The standard is made up of eleven stages which demand the implementing organisation to assess its current impact on the environment and set quantifiable targets to reduce these impacts. There is an audit cycle to ensure that these objectives are met and reviews take place at appropriate intervals to establish continuing applicability and effectiveness of the EMS in view of changing market conditions or legislation. The EC's Eco - Management and Audit scheme also incorporates the EMS concept to minimise environmental impact.

It is the initial review of the EMS which may appeal most to landlords. This will establish the tenant's position with regard to the environment, including a review of legislative requirements and an evaluation of its impact on the environment. The results will then be documented in the register of regulations which will form a comprehensive legal guide to environmental laws and regulations.

The other aspects of the system are also designed to minimise the environmental impact of the implementing organisation; reducing these impacts should reduce the environmental risk faced by the landlord.

Becoming accredited to a recognised system of environmental management, such as BS 7750 will satisfy some, if not all, of the stakeholders outlined in figure one. It also offers the best opportunity to date to avoid future liability for environmental damage on behalf of both the tenant and the property owner. This confers two major benefits to the landlord:

1. The ownership of a property with enhanced security of income.
2. The ownership of an inherently less risky investment.

How valuers take the existence of an EMS into account when valuing a property and offering advice to clients is still unclear, and this will be the subject of much research in the future. At this stage it is important for valuers to be aware of the concept, but most importantly to be conscious of the potential benefits bestowed on both tenant and landlord.

Conclusion

In valuing property investments it will become increasingly necessary for valuers to consider the environmental probity of tenants. The lack of environmental management, in a property with the potential to pollute and degrade the environment, will not only lead to financial problems for the tenant, but could also leave the landlord with negative asset values.

An Environmental Management System could provide the best insurance there is for tenants and landlords wishing to avoid environmental liability. The time is rapidly approaching when this reduction in environmental risk, and the potential corporate benefits of sound environmental management, cannot be disregarded by those offering valuation advice.

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Stuart Gronow and Gwyn Prescott are Principal Lecturers in the Department of Property and Development Studies, the University of Glamorgan. They act as supervisors to the project which is registered for a Master/Doctor of Philosophy Degree.

ENVIRONMENTAL MANAGEMENT SYSTEMS AND THEIR USE AS A RISK REDUCTION STRATEGY IN PROPERTY INVESTMENT

Neil Turner
Stuart Gronow
Gwyn Prescott
University of Glamorgan

Ian Scott
Fletcher King

1. Introduction

The risk/return profile of many types of investment media is now being influenced by environmental issues, and property, of course, is no exception. The response of the property industry to environmental change (RICS & SPR, 1992), The impact of Environmental Issues on Commercial Property (South Bank University, 1992), Manual of Valuation Guidance Notes - the White Book (RICS, 1993) and an RICS Education Trust award, won by the City University to undertake an analysis of valuation and investment methodology in the light of changing environmental legislation (RICS, 1994) all demonstrate the importance that research into environmental matters is now assuming for property.

This paper will outline why the environmental performance of tenants occupying industrial type property should become a material consideration in the investment decision making process in future years. It will highlight how a tenant's poor environmental performance has the potential to impact upon the level of return offered by a property investment. It will also illustrate that the environmental management system (EMS) concept, which can be used as a proxy for the environmental performance of a tenant, can be introduced into the investment decision making process to reduce the environmental element of investment risk. The underlying theory is that properties, and industrial type properties in particular, that are occupied by tenants who have developed, or are in the process of developing, EMSs carry less risk, *vis-à-vis*, other properties which are occupied by tenants displaying low levels of environmental awareness.

This paper strongly supports those who suggest that the environmental developments which have taken place over the last few years now require the attention of investors and risk appraisers alike. However, it does not argue for environmental issues to dominate the investment decision making process, because, quite frankly, they should not.

2. Environmental management systems

Many environmental initiatives which are undertaken by the private and public sector are now developed within the framework of an EMS. Particularly amongst manufacturing companies, and other occupiers of industrial type property, it is expected that the EMS will be the preferred route for companies wishing to demonstrate that they have improved their environmental performance.

An EMS is defined in BS 7750 as the organisational structure, responsibilities, practices, procedures, processes and resources for implementing environmental management (British Standards Institution, 1994). It is a management system which helps companies to analyse their environmental effects, establish environmental policies, set objectives and targets for performance improvement and set up an audit and review system to track and report improvements in environmental performance. "*Areas targeted for improvement should include those where improvements are most necessary to reduce risks (to environment and organisation) and liabilities, and should be identified by cost-benefit analysis wherever practicable*" (*ibid.* p 14). (For a full account of EMSs in the property context see Turner *et al* 1993).

3. Competitiveness and environmental performance

An increasing number of companies are now discovering that the environmental initiatives they have undertaken have often resulted in cost savings. (For a comprehensive list of companies which have enhanced their environmental performance, and improved profits at the same time see Pearson, (1992), Smart, (1992), and Schmidheiny, (1992)). Other companies have concluded that "*...while they may not increase profits through going green, they most certainly will lose money by not doing so - through increased waste disposal costs, catch - up costs, costs of complying with significant legislative changes in a hurry, changes in public opinion heavily penalising what is now unacceptable behaviour ...*" (Gray and Collison, 1992).

Some commentators have also argued that companies which cannot display a high level of environmental performance "*...will find it increasingly difficult and expensive to attract and retain investment and insurance for their operations.*" (Welford and Gouldson, 1993). Indeed a survey by the Advisory Council for Business and the Environment has shown that companies can reduce the costs of finance and insurance by adopting environmental management practices (ACBE, 1992). This appears to be the experience of many companies that have recently finished a twelve month pilot programme implementing BS 7750. Those that have started to develop EMSs are reporting that relationships with insurers and financiers have improved since they are "*... less chary of hidden environmental liabilities*". (Carty, 1993).

Other commentators have gone even further, asserting that an improved environmental performance is crucial to the competitive future of corporations. Kiernan, writing in Business and the Contemporary World, argues that "*The conflict between environmental protection and economic competitiveness is a false dichotomy, and stems from ... a static view of competition*" (Kiernan, 1992). He goes on to write that the basis of corporate competitiveness has shifted progressively from price and volume to quality, then to speed, and finally to flexibility, responsiveness and mass customisation. Business, he argues, is now poised on the threshold of a fifth mega-shift, this one arguably the most profound and likely to be the most enduring of all. "*This time a company's environmental performance will be increasingly central to its competitiveness and survival*" (*ibid*). Articles from the Investors Chronicle also seem to support this view, arguing that if companies are to compete in the 1990s, they need to become clean and green (Coyle, 1992).

From a survey of 200 tenants it would also seem that they perceive there are positive benefits to be gained from improving their environmental performance (Turner and Scott, 1994a).

4. Property investment and environmental legislation

4.1 Tenants and environmental legislation

The occupier of industrial type property, with no procedure to keep abreast of environmental legislation, is far more likely to transgress that legislation. The increasing level of fines which can be imposed by the various regulators, and the accompanying bad publicity, may adversely affect the underlying competitiveness of the tenant. The ultimate sanction available to the regulators is the revocation of a licence or permit allowing the tenant to carry out certain activities. This may undermine the tenant's ability to continue paying rent to the landlord.

An increasingly realistic scenario for the tenant who operates with a complete disregard for environmental legislation would be adverse discrimination by influential stakeholders, such as customers, regulators, insurers, banks, equity investors and employees. It seems reasonable to suggest that a deterioration in tenant covenant would follow, or even bankruptcy in extreme cases where significant liabilities are incurred. The property investor would, therefore, be left with a poorer covenant, impacting on the capitalisation of income, or lose the tenant altogether, demonstrably impacting upon investment returns.

Civil damages that a tenant may face are also highly significant. Damages can now be so large that they are potentially capable of ruining companies as a result of a single act of pollution (Weever, 1994).

4.2 *Landlords and environmental legislation*

The investor should also be aware that liabilities, which occur due to a tenant's poor environmental management practices, could be passed on to the landlord. Previous research suggests that landlords are indeed aware of this problem, with many of them reviewing lease conditions "*...with the intention of ensuring that their own tenants use and occupy their property in such a way as to avoid problems with contamination which could be inherited by the landlord*". (Pagella *et al.* 1993). Ambiguous wording in legislation, and leasing arrangements which provide the landlord with some "control" over tenant activities, make it unclear where liability will ultimately fall. The key legislation uses wording which potentially leaves landlords open to prosecution by regulatory authorities and then the statutory clean up of the site if successful. This will, to a large extent, depend on the individual wording of each lease. Paradoxically, the more a landlord attempts to protect his assets by introducing covenants requiring the tenant to comply with all environmental legislation, the more the regulators are likely to argue that the landlord is implicated in a pollution incident, because, at least to some extent, the landlord will be exercising control over the tenant's activities. (For a full account of the relevant environmental legislation see Turner *et al*, 1994b).

Another important area which has been the subject of much debate in the field of environmental law was examined in the Cambridge Water Co case (Cambridge Water Co, 1993). This House of Lords decision means that for a party to be held liable for environmental damage under civil law, there has to be an element of foreseeability; i.e. that those responsible, could or should, have foreseen that their activities would result in damage to a third party. Where a tenant has covenanted not to pollute, contaminate or transgress legislation, and the landlord has the power, in theory at least, to prevent any of these occurrences, the plaintiff could argue that the landlord has knowledge, or should have had knowledge of the activities, and therefore could have foreseen the damage. Consequently, it is possible that the landlord is not completely insulated from being joined in a claim against one of his tenants. Again it is suggested that much will depend upon the wording of each lease.

Perhaps a simpler way in which this may occur is where a tenant is forced into, or chooses liquidation, by the size of potential civil liabilities brought against them. It could be that the landlord would then become the subject of the action and could be required to pay significant damages to a third party, which in some instances will be greater than the initial purchase price of his investment. The impact upon investment returns would, needless to say, be very damaging.

The possible stigmatisation of the landlord's proprietary interest should also not be overlooked. If the tenant has caused pollution once, will it happen again? Potential investors will be aware of past environmental incidents (if they have undertaken their searches properly) and may decide against purchase on this basis. A possible write down of the landlord's interest could still, therefore, occur. Even where it was certain as to who exactly was the polluter, the occurrence of any environmental incident can be damaging for the landlord. The landlord would need to be assured that the reversionary interest has been protected and that the contamination has been cleaned

up. This would involve an environmental audit of some description in order to verify the adequacy of the clean up works and this would inevitably increase management costs.

A situation where a tenant leaves behind contamination problems could also impede future development plans, since the presence of contamination is a material consideration that local planning authorities take into account in determining planning applications (Boxwell, 1993).

Although this paper is generally concerned with investment in B1/B2 type property, it should be highlighted that environmental risk does not only attach itself to industrial property. Whilst occupiers of office buildings may not present the property investor with potential environmental liabilities through activities on-site, if the tenant is part of a larger organisation, with substantial industrial undertakings, for example, then the potential environmental liabilities which may exist off-site become important. Whether environmental management procedures are in place to reduce the likelihood of environmental incidents occurring, and how well the company as a whole can absorb environment related loss, can have a bearing on the ability of a tenant to continue paying a rent to the landlord of an office property.

5. Summary

It is, therefore, possible to identify how an EMS could reduce the risk afforded by the environmental performance of B1/B2 type occupiers.

Tenant develops an EMS	Benefit to Property Investor
The adoption of an EMS will address the concerns of many different, and influential stakeholders. For example; banks, insurance companies, customers, discerning employees, potential and existing investors, the local community, the media and the public at large.	Possible enhancement of income security, displaying lower risk for the investor.
Compliance with existing and future environmental legislative and regulatory requirements reducing the possibility of the tenant incurring fines, clean up costs (statute and civil) and the bad publicity accompanying such action.	Possible enhancement of income security, displaying lower risk for the investor.
The appropriate management of potentially polluting processes will reduce the risk of polluting and contaminating incidents occurring.	Reduction in risk of liability for environmental damage falling upon the landlord. The prospect of environmental problems preventing, or delaying, disposal will be reduced, thus impacting upon liquidity risk.

6. Environmental risks and property investment risk appraisal

The development of environmental legislation and any other measures which the United Kingdom or European Union pursue to limit environmental damage, are systematic property risks. Investors have no control these developments in the same

way that they have no control over national economic policies. Therefore, the "environment" in the widest possible sense is a systematic property risk.

It may also be appropriate to class the "environment" under sector risk, since environmental risks are far more likely, although not exclusively, to impact upon returns offered by industrial type property than retail or office property. Sector risk, by its very nature, is capable of being diversified away or, more accurately in this context, avoided by allocating funds to those properties which are far less likely to carry environmental risk.

However, this research concentrates on how a tenant's poor environmental management practices could increase the variability of return offered by a property investment. It is, therefore, the tenant's management of the environmental issues which assumes importance. It is argued that this is more appropriately dealt with under the heading of tenant risk. Indeed, Baum and Crosby's definition of tenant risk, "*...the chance that the tenant will affect returns by his action.*" (Baum and Crosby, 1988) seems particularly apt. The chance that an investor's return will be affected by environmental issues brought about as a result of poor environmental management practices will, therefore, be treated as a specific or unsystematic risk in this paper.

6.1 Portfolio and single asset risk

The main plank of Modern Portfolio Theory (MPT) is the identification of risk as volatility of return and the division of such risk into market risk and specific risk (Waldy, 1989a). This can then be used as the basis for constructing a portfolio whose assets give acceptable returns but which are lowly correlated so that risk (as measured by standard deviation) will be reduced (MacGregor, 1993). The aim is to create a portfolio which is free of unsystematic risk and is subject to systematic risk only. It will, therefore, be the volatility of the market as a whole which produces risk for the portfolio (Baum and Crosby, 1988).

Brown (1988) has argued that, due to the low correlation of returns on individual properties, high levels of risk reduction can be achieved as more properties are added to the portfolio. He suggests that by holding a portfolio of approximately 30 properties, and assuming that it is not unduly influenced by large value properties, it is possible to diversify down to the systematic risk level. However, Brown acknowledged that because of the investment characteristics of property, for example, indivisibility, illiquidity and usually unequal weighting within a portfolio, the relative portfolio performance will be heavily influenced by factors specific to individual properties, as opposed to market wide factors. (Brown, 1988).

Moreover, Waldy (1989) in determining the perception of risk of institutional investors found that they "*...considered the specific-risk factors to be of greater importance to property risk than the market-risk factors*". More recently it has been contended that stock selection has a dominant effect in determining the relative success of a fund, and that individual properties have been responsible for most of the variability of return occurring within portfolios (Morrell, 1993). Additionally Whalley (1994) argues that portfolio structure is of greater significance for larger funds where there is more opportunity to diversify away individual property factors. Thus stock selection is more critical for small funds.

This suggests that specific risks should be considered more fully than they have been in the past. They are important because of problems associated with portfolio diversification, and, quite simply, because few investors, if any, have the funds to diversify internationally, regionally, by city and by property type in order to diversify away the unsystematic risks of property (Baum and Crosby, 1988).

One class of unsystematic risk is tenant risk, the acceptance of which is testimony to the fact that investors have concerns about the way in which a company runs its business. The investor is, therefore, likely to examine the tenant's " ... *track record ... prospects ...and management.*" (Hargitay and Yu, 1993).

Having established that poor environmental management on the part of the tenant could lead to an asset's return being reduced, eradicated or even turned into a liability, the call for an assessment of the tenant's environmental management practices to enter into the stock selection process seems logical and defensible. The purpose of examining the "environmental performance" of a tenant, given the importance of unsystematic risk, is that overall risks inherent in the entire portfolio are reduced and performance enhanced.

However, in advocating that investors need to consider the environmental performance of tenants, it is also acknowledged that this process will be far more important for **certain** investors, under **certain** investment conditions, where property is located in **certain** geographical locations and where **certain** types of property are the subject of the investment decision.

7. Some factors to be considered

7.1 Tenant

Is the tenant capable of causing environmental problems on site? This can be identified by the type of processes carried out, and whether authorisations and/or permits have been obtained from the relevant authorities.

Is the tenant capable of causing environmental problems off-site? The tenant, as part of a larger organisation, may have substantial industrial undertakings off-site which could lead to environmental problems for the wider company.

How well can the tenant absorb environment related loss? The cost of environmental liabilities continue to grow, and it is axiomatic that covenant strength will have a bearing on the tenant's ability to pay for clean up should it arise.

7.2 Leasing arrangements

Do the leasing arrangements provide the landlord with some "power to control" or "knowledge of" tenant activities?

Is there an indemnification from the tenant against environment related loss? The investor does need, however, to consider the covenant, since the quality of this indemnity is obviously a function of the tenant's financial standing. There are other problems with these contractual remedies as a means of allocating liability between

parties, for a full discussion see Atkinson, (1993) who concludes that, their real effectiveness "*remains difficult to judge*".

Any insurance cover enjoyed by the tenant will obviously benefit the landlord also. It is unlikely that the standard insurance policy in an FRI lease, for example, will cover the tenant against liability for environmental damage. The tenant may, therefore, wish to take out a separate policy to cover against third party claims for environmental damage. These policies have been severely restricted over the last couple of years and may not provide complete cover for the tenant, or indeed the landlord. Those policies which cover sudden, as well as gradual, pollution are prohibitively expensive, and may be unobtainable without a full scale environmental audit of the site and evidence of environmental management practices on behalf of the tenant.

7.3 *General economic climate*

Income security risk is likely to remain an important factor in the 1990s, more so than in the era of rapid rental growth of the 1970s and 1980s (McIntosh, 1993). A system which could help reduce this risk is likely to be taken far more seriously by investors in this decade than in the previous two.

7.4 *Fund size and structure*

Broadly speaking, unsystematic risks are more critical for smaller funds, due to their inability to diversify away individual property factors (Whalley, 1994). This suggests that the risks attached to the environmental performance of the tenant, being a specific risk, will be more important to smaller funds and property investment companies, particularly those with a large allocation to industrial type property.

If forecasts suggested that the B1/B2 sector was due to perform particularly well, or returns were expected to be lowly correlated with other property sectors or other asset classes in the future, the EMS concept could become an important consideration at fund structure level. By considering an EMS at this level it would be possible to hold environmentally risky assets, which may have a low correlation of returns with other assets in the portfolio, therefore allowing market risk to be reduced whilst minimising the specific environmental risk which exists in today's, and which will become increasingly important in tomorrow's, property investment market.

7.5 *Location of property*

Is the property situated close to sensitive environmental media, for example, water courses?

Is the property located on permeable strata which would allow any pollution that did occur to migrate to other sites or sensitive environmental media?

7.6 *Size of the tenant*

At a very practical level it may be that taking into account the environmental performance of the occupying tenant in property investment decisions has more relevance to smaller tenants than larger ones. To assess the environmental risk of a large multi-national company which has many different sites in many different

countries subject to various legal systems and market pressures would be very difficult, if not impossible.

The environmental performance of smaller tenants is potentially far more serious because banks and insurance companies will be more likely to turn them away on environmental grounds than, for example, BP, who may be a large customer. Therefore, the environmental performance of these smaller companies could impact disproportionately upon their economic performance and thus covenant strength.

7.7 *Type of property*

The fact that some properties can be described as low growth high yielding investments, relying more on present cashflow than on growth prospects for their generation of value, is also relevant to an examination of EMS and their effect on property investment risk appraisal. The security of the present income will play a major role in the determination of the value of such investments, therefore, any system which strengthens this present income should find its way into the considerations of property investors of these types of property.

8. Conclusion

The environmental performance of a tenant, particularly whilst in occupation of certain types of property and under certain circumstances, now has the potential to impact upon the level and variability of return offered by property as an investment. The increasing importance of tenants being able to demonstrate to their stakeholders that they can perform to a recognised environmental standard, will increasingly affect the incidence of tenant liability, and default, as standards rise. It is this reduction in risk for an investor, whether it be identified with tenant, and thus income, risk reductions, or a reduction of risk for the investor's own environmental liability, which provides the rationale for investors to take into account the existence or otherwise of an EMS in property covenant, when making investment decisions.

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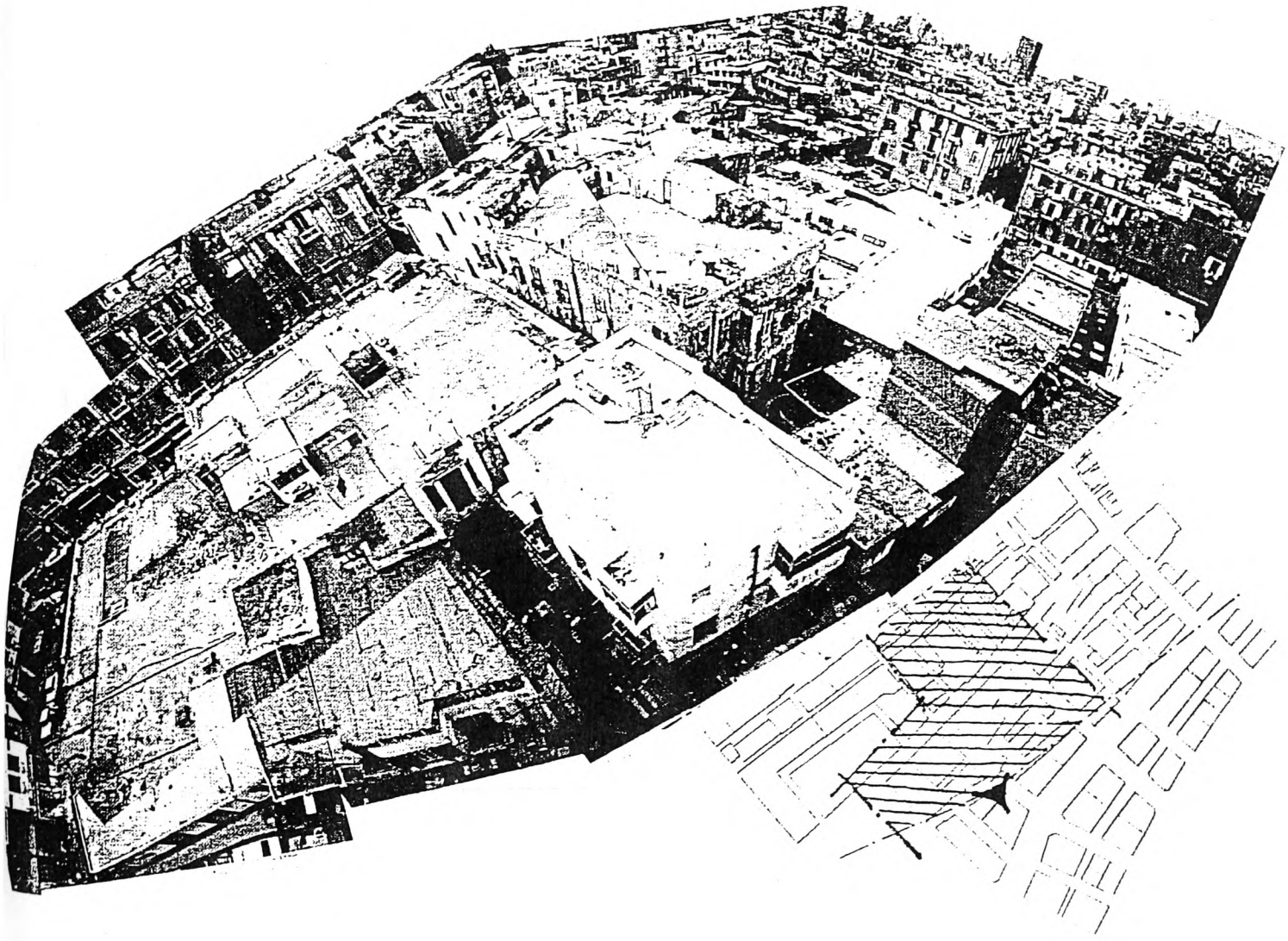

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ENVIRONMENTAL MANAGEMENT SYSTEMS AND PROPERTY VALUATION, INVESMENT AND MANAGEMENT

Neil Turner, Stuart Gronow & Gwyn Prescott

Summary

This paper outlines the potential impact of Environmental Management Systems (EMS) on the valuation of landed property. It is argued that the EMS concept is important since a tenant addressing and managing environmental risks will provide landlords with inherently less risky investments, from an environmental perspective. Further, if the link between environmental and economic performance is established, which some surveys have tentatively indicated, then the landlord will also receive an income which is comparatively more secure. It is in the interests of the Chartered Valuation Profession that evidence begins to materialise of the environmental performance of occupying tenants being incorporated into property valuations.

Introduction

Property is an investment medium which, unlike financial assets, is directly affected by physical factors as well as market risks. Due to a profusion of environmental risks and pressures, some of which are physical, the environmental performance of a tenant occupying commercial or industrial premises is now a factor a valuer should take into account when determining the open market value of such properties.

Addressing the environmental concerns of interested parties, such as customers, bankers, investors and regulators, will increasingly influence a tenant's ability to survive in the very competitive, and environmentally aware 1990s. This has obvious repercussions for the security of income provided by a property. Of more immediate concern however, is the potential environmental damage a tenant can cause to the landlord's property, neighbouring land and the environment in general. Under certain circumstances this could result in heavy fines and penalties for the landlord, possibly wiping out the value of his asset.

Valuers should thus be aware of the environmental management practices adopted by a tenant when determining the open market value of occupied property. Quite simply, " ... all those involved in the appraisal of land and buildings need to include environmental factors in their considerations ... " (Royal Institution of Chartered Surveyors, (1993), and a system which can allow this to take place should be thoroughly debated by the profession.

PRESSURES FOR ENVIRONMENTAL IMPROVEMENT

Legislative pressures

Proposed legislative changes, particularly the shift towards more strict liability regimes for environmental damage and pollution by the European Community and the Council of Europe should start alarm bells ringing throughout the property industry. The issues are complex, but quite simply there is a very comprehensive, and at times acrimonious, debate under way trying to establish who should pay for cleaning up past and future environmental damage. The property profession will overlook these developments at their peril. The various provisions of the Water Resources Act and Environmental Protection Act also mean that a landowner could find himself responsible for cleaning up environmental damage and paying fines as a result of a tenant's poor environmental performance. As highlighted previously the real issue facing property owners is the prospect that the tenant will damage the landlord's income or assets by, "falling foul of the plethora of environmental legislation and, in particular, the clean-up powers of regulatory authorities." (Deanesly and Papanicolaou, 1993).

The recent House of Lord's decision in the Cambridge Water Company case (Cambridge Water, 1993), which at first sight may lead a reader to believe that companies are less likely to be liable for environmental clean up, has a sting in its tail. The issue is now whether or not the type and extent of pollution caused was foreseeable, by the alleged polluter, at the time the alleged polluting activities occurred. It is important, therefore, that tenants adopt what is current best practice so that they can argue in due course, if pollution does occur, that it was unforeseeable and that civil liability should not arise.

Evidently, "Insurers and bankers will ... have to take a much closer interest in their customers' Environmental Management Systems before they underwrite pollution liability risks or lend money" (The Independent, 1993). The property manager and investor are advised to take the same approach when considering adding to their portfolios, or indeed disposing of property assets.

Financial backing

Sustainable development, and the international consensus which demands it, will require companies to integrate environmental and economic decision making. As environmental costs begin to be internalised and the Polluter Pays Principle (PPP) becomes more established, the ways in which capital values of companies are determined in the marketplace will begin to change. Those businesses which amalgamate the two issues, through an EMS for example, will be perceived as more valuable in the future.

A clear example of financiers voting with their feet in the face of environmental uncertainty is the collapse of the Mountleigh Property Company in 1992. This business failure "...has been inextricably linked with concern that some of the land under the Merry Hill development would be included on the section 143 registers..." (Parry, 1993). The potential for environmental liability attached to the site was probably far less serious than initially perceived, however, the lesson to be learnt is that investors are increasingly likely to fund projects that carry the least possible risk to the environment.

The rise of ethical and environmental investing

Five to ten years ago the term green investing would have conjured up visions of a rather extreme minority that allowed moral considerations to cloud financial judgement.

This view is certainly changing and the increase in the amount of money screened through environmental criteria is testimony to this. A survey undertaken by the stockbrokers, James Capel, in 1990 found that "more than a third of fund managers take environmental factors into account in reaching investment decisions.." (Financial Times, 1990). (The survey questioned general fund managers and not those managing ethical funds).

Therefore, the concept of ethical investing has developed from minority extremists in the USA, to the development of internationally established ethical investment funds, to over a third of fund managers of general funds being influenced by the environment, and finally to high street banks, which describe the environmental performance of its customers "as one of the key factors demonstrating effective corporate management." (Statement by banks, Earth Summit, Rio de janeiro, 1992).

The banks

There is no doubt that the banking industry is becoming acutely aware of environmental problems and liabilities that may arise due to a lack of environmental foresight on the part of its customers. The main areas of concern lie with the potential to be held liable for environmental damage caused by the borrower's poor environmental practices, and secondly, the inability of the borrower to repay a loan due to financial impediments, which will increasingly accompany poor environmental standards.

The way companies deal with these new pressures "will impact upon the cost of money to business... as banks and other stakeholders reappraise their position." (Thompson, Hillary, 1992). Here the company that has sound environmental procedures in place may find borrowing from the bank easier, and may obtain finance at preferential rates.

Insurance industry

It can be expected that insurance companies will, over the next few years, investigate ways to limit their exposure to environmental damage. This will entail insurers beginning to discriminate between environmentally well managed companies and those which are not, thereby introducing a two tier premium market. There is evidence to suggest that this is already the case from a recent report where it was found that environmental programmes "...frequently resulted in an enhanced ability to do business in ways such as lower insurance premiums..." (Advisory Committee on Business and the Environment, 1992).

Such is the concern for insurance companies that James Capel, the stockbrokers, have produced a report which examines the likely exposure to environmental liability of the main insurance companies with a view to providing investment recommendations (Hodges, Nichols and Richards, 1993). With such sensitive information becoming available it is likely that the insurance companies will be very careful about future insurance cover, who it is offered to, and ensure that the premiums correspond to the risks attached. This risk management approach will mean insurers will be providing positive encouragement to businesses to identify and control environmental risks.

Peer pressure

There are many corporate international agreements which suggest that organisations will be under an increasing amount of pressure from the companies they do business with to improve their environmental performance. The International Chamber of Commerce drafted a Business Charter for

Sustainable Development which was launched in April 1991 at the second World Industry Conference on Environmental Management. This Charter, which was endorsed by 600 firms world-wide by 1992, encourages companies to, "commit themselves to improving their environmental performance in accordance with these [the Charter's] 16 Principles, to having in place management practices to effect such improvement, to measuring their progress, and to reporting this progress as appropriate internally and externally." (International Chamber of Commerce, 1992).

As the list of companies which take the environment very seriously continues to grow, greater pressure will be applied to those that drag their feet on the issue. It is suggested that suppliers with good environmental performance will have a competitive advantage.

Consumers

The pressure of green consumerism is a vital component of the environmental threats facing business. Although this pressure was probably at its peak in the late 1980's, when concern over unemployment was less prominent, the issue still demands a response from commerce. A survey undertaken in 1991 highlighted that 93% of consumers expressed major concern about the environment and that 79% make some effort to buy green products, (McCann-Erickson, 1992). The same report also indicated that a staggering 51% were prepared to sacrifice quality of performance for less environmentally damaging goods.

Furthermore, as schools and higher education establishments begin to increase the environmental content of their curricula a new wave of even more environmentally aware consumers will begin to enter the market over the next 10-20 years. Those businesses that do not appreciate this fact do so at their peril.

ENVIRONMENTAL MANAGEMENT SYSTEMS

The development of environmental management systems

Since it has been established that sound corporate environmental performance is becoming increasingly important to long term economic success, the next issue to be addressed is; how should a company respond? The response to date has been two pronged. Firstly, there is the reactive approach, including enhanced expenditure on pollution control hardware, marketing image declaring the environmental probity of the company and ad hoc initiatives such as energy audits and waste minimisation schemes. Increasingly however, firms are becoming proactive in their response to the environmental issues, involving the development of formal written environmental policies and the use of environmental auditing.

From the environmental pressures identified it should be apparent to the reader that the appropriate action should be proactive. It is evident that legislation and regulations, consumer awareness, government use of financial measures to achieve environmental improvements, concern for environmental probity on the part of financial institutions, investors and insurers and demands for the publication of environmental data are all phenomena which display **permanence**. They are here to stay and likely to increase in intensity as time passes. Therefore, addressing these pressures will require an integrated approach and ongoing response, since stakeholders are no longer interested in the results of a one off environmental initiative, they need reassurance that the long

term environmental performance will meet certain standards.

Environmental management systems - British Standard 7750

British Standard 7750 "...contains a specification for an environmental management system for ensuring and demonstrating compliance with stated environmental policies and objectives...The standard is designed to enable any organisation to establish an effective management system, as a foundation for sound environmental performance and participation in "environmental auditing" schemes." (British Standards Institute, 1992).

It can immediately be seen therefore, that the standard does not itself lay down environmental performance criteria, but it provides the framework through which environmental improvements can take place. It is also based on the assumption that to be effective, environmental audits and reviews should be carried out within a structured management system which will allow the improvement to take place across the whole organisation rather than one particular facet such as a company's energy consumption. The standard is open to all organisations, indeed it is written in a generic manner so that it is applicable to all types and sizes of organisations, not just industry. The entire company must join the scheme rather than individual sites applying on a piecemeal basis.

Preparatory Review. An organisation with no existing EMS should, as a first step, establish its current position by means of a preparatory review. This review should highlight the effects on the environment, whether direct or indirect, of the organisation's activities. This is the starting point, from which the process of setting objectives and targets can be initiated. This process should examine legislative requirements, evaluate its impact on the environment, and result in a critical appraisal of its existing management structures.

Environmental Policy. The policy must be relevant to the company's activities, and be understood and implemented at every level in the firm. There should also be a commitment to continuous improvement of environmental performance. The policy must also provide for the setting and publication of environmental objectives, and it must itself be publicly available.

Organisation and Personnel. The organisation shall define and document the responsibility, authority and interrelations of key personnel who manage, perform and verify work affecting the environment. The standard requires the nomination of a management representative with the authority and responsibility to ensure that the requirements of the standard are being met. The organisation shall establish and maintain procedures for identifying training needs for the company as a whole.

Environmental effects. The organisation shall establish and maintain procedures to record all legislative, regulatory and other policy requirements. This will include documenting and communicating with relevant interested parties concerning the management of environmental effects. The organisation shall establish procedures for evaluating the effects of its activities (direct and indirect) on the environment.

Environmental objectives and targets. The determination of objectives and targets in the light of the preparatory review, policy statement and environmental effects register. The objectives should include a commitment to year on year improvement in overall environmental performance, but not necessarily in all areas of activity. Targets should be quantitative and achievable but also demanding.

Environmental management programme. The environmental programme is the key to compliance with the organisation's environmental policy. It should include;

a) designation of responsibility for targets at each function level;

b) the means by which they are to be achieved.

Environmental management manual and documentation. The creation of a written manual for the system and its consistent parts. eg. list environmental policy, objectives, targets and programme; document key roles and responsibilities. Establish and maintain procedures for controlling all documents required by this standard. It must prove that a system exists and that it is fit for its purpose.

Operational control. The implementation of procedures to ensure that control, verification, measurement and testing within the organisation are adequately co-ordinated and effectively undertaken. Ensure that non-compliance is investigated and corrective action taken.

Environmental management records. Establish and maintain a system of records to demonstrate compliance with the EMS requirements and to record the extent to which objectives and targets have been achieved.

Environmental management audits. Create and operate an audit plan to ensure that the organisation's activities conform to its programme and are being implemented effectively. Determine the effectiveness of the EMS in fulfilling the organisation's environmental policy.

Environmental management reviews. The organisation shall, at appropriate intervals, review the EMS to ensure its continuing suitability and effectiveness. The results of these reviews will be published if the company has a commitment to do so.

The EMS will therefore, enable an organisation to satisfy the international consensus which calls for the amalgamation of the economic and environmental decision making process, since it reduces the environmental impacts of an economic activity. The concerns of investors, regulators, consumers, peers and employees are also addressed by such an integrated approach. Consequently, the benefits a tenant may receive from adopting an EMS are summarised below:

-reduction in the risk of facing charges for environmental liability
-lower insurance premiums
-better relations with regulators
-possible substantial cost savings
-generates a competitive advantage
-public relation opportunities
-facilitates finance from banks
-attracts discerning personnel
-enhanced business, customer and community relations
-responding to the "consensus" which is required for a company to survive into the next century.

TENANT RISK

The acceptance of the concept of "Tenant Risk" by the Surveying profession is testimony to the fact that Investors and Managers of property have concerns over the way a company runs its business. For example, the gearing of the company may be investigated, and perhaps the organisation's position in the market place in which it operates would be of interest. Although the extent to which this happens in the market place is however, open to conjecture.

Therefore, the theory that tenant risk will be influenced by the business's ability to deal with business pressures is not new. Indeed, Baum and Crosby define tenant risk as, "...the chance that the tenant will affect returns by his actions." (Baum and Crosby,

1988). The definition goes on to contend that the, "...most serious concern of the investor will be the chance of voids, that is the possibility of the tenant vacating the premises and paying no rent." (ibid). Very simply a company which is coping with the major business pressures and is proactive in its management techniques will be a more favourable investment, all else being equal. The risk of the tenant affecting returns by his own actions will be reduced and the investor/landlord will be more secure in his income.

The emergence of environmental economics, the concept of sustainable development, the EC's fifth environmental action programme and the publics' perception, and ever increasing knowledge of environmental degradation, mean that the environment is one of the most important, if not the most important issues facing tenants. In brief it, "..is the media theme, the political agenda, the social trend, and thus a vital element of business strategy." (Campbell Dennis, 1992).

Therefore, by adopting an EMS and reacting to this important business pressure several benefits will accrue for the property investor; firstly, there will be a reduction in the risk of the investment becoming a liability, and secondly, they will enhance the ability of the tenant to pay the rent, therefore, by Baum and Crosby's definition, the tenant risk will be reduced. Furthermore, if tenant risk is reduced, there will be a corresponding appreciation in the strength of tenant covenant. We know from investment valuation techniques that the value of an investment property can be affected by the tenant covenant, (Newsom, W.1993).

Conclusion

The concept of an improved environmental performance leading to a reduction of tenant risk, an improved covenant and ultimately affecting property values has more relevance to certain types of property than others. Firstly the reduced risk of environmental liability will obviously benefit tenants and investors of industrial property more than high street retail accommodation. (It should be understood however, that environmental damage can be caused by many different types of occupiers, and not only those found in the general industrial class).

The fact that some properties can be described as low growth high yielding investments, which rely more on present cashflow than on growth prospects for their generation of value, is also relevant to an examination of EMS and their affect on property investment. The security of the present income will play a major role in the determination of the value of such investments, it is axiomatic therefore, that any system which strengthens this present income will find its way into the considerations of property investors of these types of property.

However, cash flow inconsistency and the increase in management costs associated with tenant default (or a business rationalising its activities involving a move of premises) should be a consideration of any property investor. The increasing importance of tenants being able to demonstrate to their stakeholders that they can perform to a certain environmental standard, will increasingly affect the incidence of tenant default and rationalisation. It is this consistency of income, whether it be identified with tenant risk reductions or a reduction of risk for environmental liability, which provides the rationale for investors to take into account the existence or otherwise of EMS when making property investment decisions.

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